Textile industries

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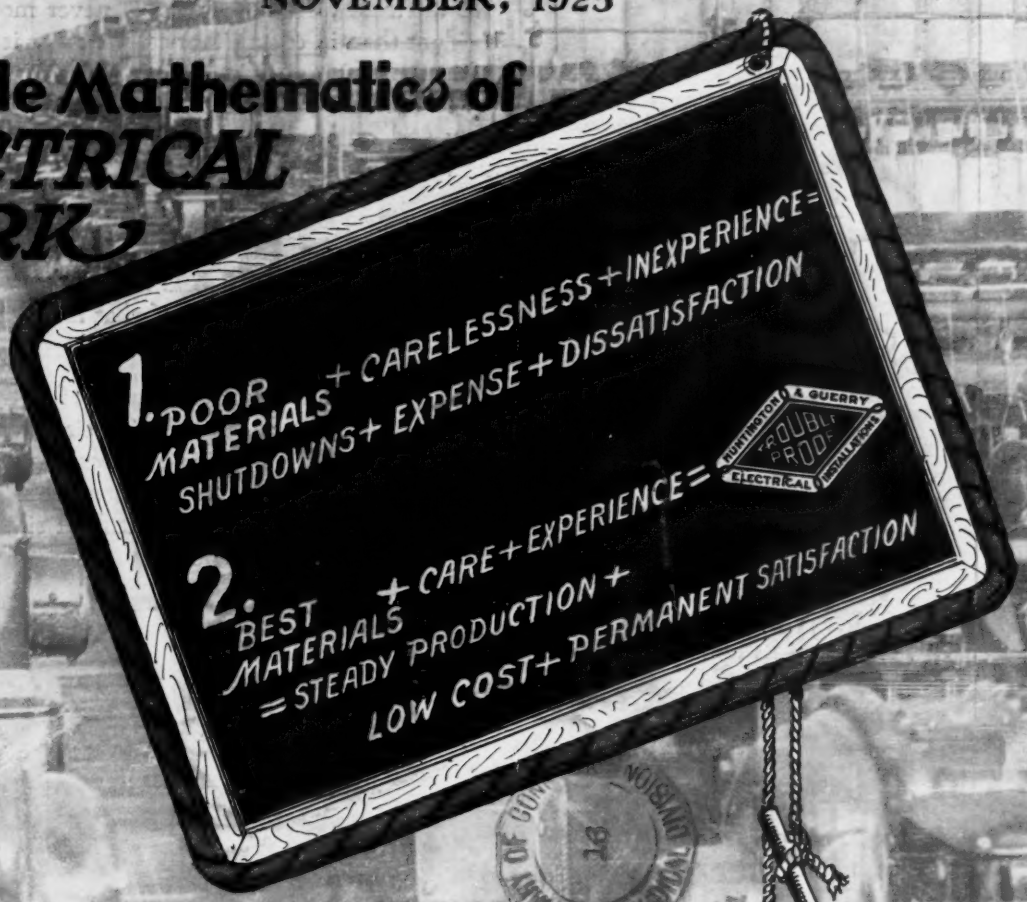
Simple Mathematics of ELECTRICAL WORK


1. POOR MATERIALS + CARELESSNESS + INEXPERIENCE = SHUTDOWNS + EXPENSE + DISSATISFACTION
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Add to these two important points the fact that the fine 60, 70, 80 and 90 denier sizes meet every test of winding, warping and weaving, and you can see why more and more manufacturers are coming to specify TUBIZE, "artificial silk at its highest point of perfection."

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With the Publishers—

Textile Industrial Exhibits That Travel

"Seek $10,000,000 for Industrial Museums," say the headlines telling of the campaign of the National Museum of Engineering and Industry to raise funds for establishing museums of industry in the principal industrial center of each state.

The word "museum" has taken on a new meaning. Once it meant to most people a collection of stuffed animals and the re-assembled bones of a few stone-age creatures, all tucked away in some dark moldy hall. Now, most museums are interesting up-to-the-times factors in educating young and old to the marvels and value of modern industries. One needs only to see the eagerness with which school children in Boston, Chicago and other cities greet actual specimens of materials and textiles, in different stages, in order to appreciate that. The hundreds of collections in handsome glass-covered cases, such as are circulated by the Field Museum, stimulate the new generations to try to understand this gigantic industry. Learning the travels of plant life of the South, through interesting process after interesting process until it becomes the garments they wear, is far more fascinating to youngsters than memorizing the rivers of Arghanistan.

A few years ago COTTON would have been offended if it had been compared to a museum. It would have sounded like an epitaph, a hint that it was in the fossil stage. But now that the traveling museum exhibits glorify the textile industry and the engineers are uniting to establish museums "to demonstrate the industries by working exhibits," we are pleased at the parallel.

"Exhibits" is a good synonym for the articles and advertisements that appear in COTTON. This paper is not for entertainment any more than the modern museum competes with side-show freaks. What is put forth by the museum and what is put forth by COTTON'S trained writers and advertisers is based on long search and scientific comparison. They are placed on view only when it is found they will add to the store of knowledge.

Field forces are sent out by the big museums to study the relation of past, present and future. At least six of them are making human-interest exhibits of natural history specimens as used by the leading industries, such as the textile.

COTTON, too, has its field forces, who are constantly exploring for new facts that will be helpful to the textile industry. "Micro-Technique of Textiles" in this number describes a development along some new lines. Other studies in micro-photography and the uses to which such work may be put will appear from time to time. This is but an example of these exhibits. The endeavor is not to tell **about** a device or process but to tell **how it is done.**

The Knitting Kinks section of December will carry the third article on using and adjusting a Model K knitting machine. It describes common faults arising in the knitting room, **why** they happen, and **how** to overcome them.

Then this paper is able to send its exhibits traveling farther afield than the average museum. When it uncovers an interesting collection of facts, all uniting to educate textile mill men, such a collection goes to the offices and homes of the leaders of the industry. Only last week the busy purchasing agent of a well-known group of mills ordered us to send his copy of COTTON to his home address instead of his office. The only inference to be drawn from this order is that articles in COTTON require careful thought and attention. They cannot be **sketched** at a glance between the business calls at the office.

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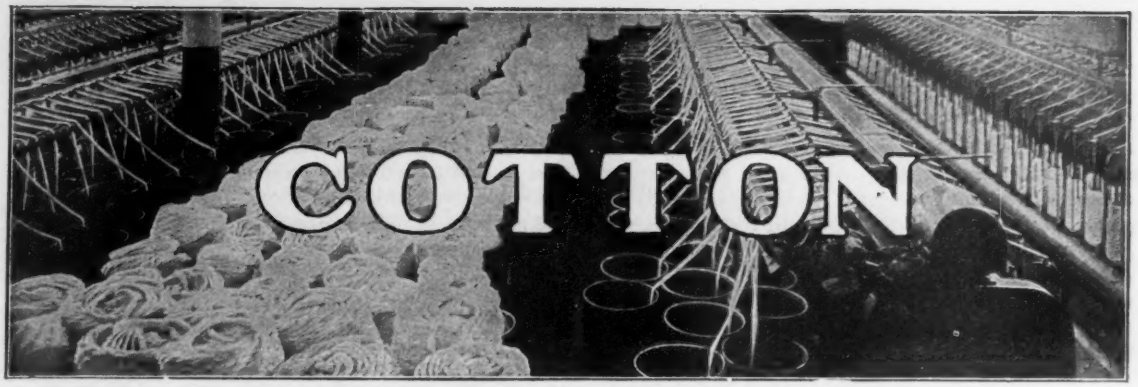
AMONG COTTON'S READERS

W. P. TINKER, Superintendent
Davenport Hosiery Mills
Chattanooga, Tennessee.

"I consider 'Knitting Kinks' the best department for the knitting mill manager and superintendent I have found in any magazine during my experience. I read the articles in each issue and find much of help and interest that I can apply in the operation of my plant."

W. P. Tinker



November, Nineteen-Twenty-Five

When Congress Meets.

On Monday, December 7, the Sixty-ninth Congress of the United States will assemble. Since March 4, last, Congress, which for more than a decade has occupied a vast place almost continuously in the national political picture, has been in substance non-existent. Generally the country has been thankful for this and has viewed the conditions as a benefit rather than a loss. For the Congress of the United States in recent years has been lower in public esteem than probably at any other time in the country's history. And it is with forebodings, rather than with hope, that its assembling has come to be viewed.

There perhaps is less reason for the sane and conservative minded person viewing the approaching one with dread than there was for fearing the beginning or continuance of any Congressional session of the last fifteen or twenty years. This isn't because Congress has weakened or degenerated. Quite the contrary; there is evidence that at last the Congress of the United States is coming back as a responsible one of the three principal departments of Government. This it hasn't been, except on rare occasions, for many years.

There has been no big improvement in the personnel of Congress but there are indications of much in the spirit of that body. This was shown even by the last Congress which, more than any of its forerunners of recent times, refused to abdicate its constitutional rights and powers. In some instances Congress no doubt was wrong as to the specific action but it was not wrong in its assertion of the right to act within its province as it wished rather than, against its will, in deference to others, even the White House.

It isn't the personnel, or even the party complexion of Congress which counts so much as its spirit, its sense, or lack thereof, of responsibility for framing laws, and raising and appropriating revenues. The aggregate personnel of a legislative body counts for little, as a rule; ninety per cent or more of what it does is at the behest of or within the control of leaders. The evolutionary process through which leadership develops in the Congress of the United States renders it all but impossible for a man weak in ability or character to achieve high place therein. Even if, by the blind rule of seniority one such gets it nominally, he can not make use of leadership actually.

When all that may be is said about the low average rating of the members of Congress, the fact remains that the places of leadership invariably are held by men of unusual ability, long experience and essential honesty. But these have not always exercised leadership, and because of their failures to do so Congress degenerated. Their abdicating has owed, in most part, to public opinion which in its haste often has put the responsibility for Congressional leadership on others than members of Congress. This sometimes has resulted in good, but the sum total of results has been harmful; for it caused deterioration in the body on which, next to the courts, must be our chief dependence for the preservation of American institutions.

Leadership in the new Congress will be freer, than in other ones of recent years, from the handicap that goes with disorderly division of personnel into irregular groups. In the last two Congresses blocs counted for more than parties. It is evident that this development was a transient one and that we are not going to tolerate the system of bloc control which enfeebles the legislative bodies of Continental Europe.

The parties as such will be stronger than in recent years. But they will not count for as much as when in their heyday, and probably never will again. Congress no longer knows partisan fury; what appears to be is pantomine only. This may be good.

The new Congress will be more conservative both in the currently political and the moral sense, than its predecessors of recent years. It is apt to stand out against much further elaboration of the Federal Government, even though there be pressed on it, from outside and within, the claim that in that way lies reform and progress.

Whenever Congress delegates a power, whenever it amplifies the executive branch of the government, Congress also distracts from its own power and prestige. This Congress, as an organism, is beginning to realize that many of its members regard it as their chief business to "get" for their constituents and their communities—no matter how, but get all they can out of the Federal establishment. And to get they first must take and pass on to the executive branch of the government for distribution.

Local and sectional equations and groups still figure big in and complicate Federal affairs, particularly those handled by Congress. Taxation is approached largely from the local point of view; foreign affairs largely from the racial point of view. Yet Congress can and sometimes does grasp and deal with big subjects nationally, as it did with immigration after years of pulling and hauling from every other point of view.

The "come back" which may distinguish the new Congress is likely to be characterized in some measure by a restoration of the House of Representatives to some degree of its lost prestige. The House, being close to the people, was intended to be the most powerful branch of the Government. Its large membership, the strict rule of cloture which governs debates therein, and finally the stripping of the speaker's chair of power, caused that part of Congress to fall to the point of becoming scarcely more than an automaton. The Senate failed to realize on the opportunity thus afforded it of becoming the dominant unit in the government, as for a long time it bade fair to do. It has endeavored more to usurp the powers of the President than to preserve those of Congress. The burden of Congressional restoration rests largely on the House of Representatives which must dull the arrogance of the Senate as well as curb the rampant bureaucracy which holds sway in the executive branch of the government.

Those leaders who battle for the restoration of the Congressional prerogative deserve the support of the public.

A Question of Government Ownership.

Recent developments, notably conflict between the U. S. Shipping Board and President Coolidge, brings to the fore again the question of shipping. Congress may be—should be—forced to take definitive action in the premises.

The subject may seem to be one that is remote from the interests of persons whose activities are far from the sea, but such is an illusion only. It bears mightily on foreign trade, in which every industry is more or less vitally concerned, and on fundamental principles in which everyone is concerned.

The outstanding principle involved is the old one of government ownership; substantially, it is a question of state socialism. For once the Government is permitted to apply it in a realm so vast as shipping there will be no good reason for not extending it to other realms.

On a program, proclaimed as temporary only, of government ownership and operation of ships there has been spent around $400 for every man, woman and child in the country. Yet authorities say the merchant marine is almost as unsatisfactory, uncertain and insecure as when this program first was formulated. And such real improvement as has come about owes little to governmental activity.

By reason of this program some ports and some sections have had more ships and more shipping than they otherwise could have procured. But a local advantage is no justification of a national waste. But because of it, forces that have no tolerance for government ownership as a principle are for a species of state socialism as to shipping.

It is well for thinking persons to be on their guard as to gross statements in words or figures that are put forth in the varied propaganda issued on the subject. Few of these have the applicability that is claimed.

For example, the Shipping Board's operations may have tended to keep down ocean-going rates. But they have thus hampered privately owned American ships and put a penalty on capital thus invested. Moreover what may have been saved on rates was lost in taxes paid for meeting excessive losses on operations. These operations may have served to extend the market in some quarters for American goods but it would be difficult to prove noteworthy achievements there.

The Government's adventures in shipbuilding and operation are the most colossal example of waste and futility on record.

President Coolidge evidently wants to put a stop to these costly experiments. The merchant marine never will get very far until a halt upon them is called, and may not do so then without some form of governmental subsidy. At best, the effectiveness of subsidy is doubtful; but at its worst it can not be so woefully dangerous as government ownership and operation.

There is Nothing Indispensable.

It is a truism that when a man arrives at the conclusion that the world can not get along without him the time is at hand when he can be dipensed with best, and should be. It holds for groups, be they of persons or things, equally as well. This is illustrated by the current or recent anthracite coal strike. The fuss that was stirred about previous strikes had led miners, and perhaps operators, in the anthracite regions to believe that they, themselves, were absolutely essential to the country's daily necessities. But the country, at last accustomed to their antics, virtually ignored them. This was in strange contrast to the country's attitude on previous similar occasions, beginning with the big strike in the early part of the century when Roosevelt interfered with great glory to himself and ending with the one of two years ago when the Governor of Pennsylvania "saved" the nation.

This strike probably will be the last performance of the kind, for the reason that those involved are apt to be the ones who will suffer most because of it. And this may be true regardless of the result. The country is learning that it can get along virtually without anthracite coal; much of it that used to feel utter dependence on anthracite is finding that it can do better with other kinds. Canada, which once used large quantities of it, is taking more and more of Welsh coal imported from Great Britain. New England is finding that it can use, for heat and power, West Virginia and western Pennsylvania soft coal advantageously. The South never has used much anthracite.

Hence whatever the strikers may gain in higher wages they will lose in lack of employment because of lost markets for their product.

No thing is indispensable; every thing, like every person, has competitors. The economic law of diminished returns is as invincible as that of supply and demand.

The trouble with the coal mining industry is that there has been entirely too much of it. A cutting of the mines and miners to one-half their present numbers would be highly beneficial to all. And such strikes as the one that has been on in the anthracite field will hasten the coming of the needed economic adjustment in the industry.

The theme developed at the meeting of Committee D-13, of the American Society for Testing Materials, at Greenville, S. C., and at the Southern Textile Association in Columbus, in October, augurs well for more definite interest among the practical men of the southern mills in textile standardization and specification work. These men comprise a valuable factor in cotton goods manufacture, and a more complete and sympathetic activity between the testing man, and the man inside the mill, is replete with possibilities. Both of the meetings referred to are reported fully in this issue of COTTON.

The Moisture Factor in Textile Testing*

BY DR. GEORGE B. HAVEN.†

For many years the question of testing the various textiles in order to establish their acceptability or superiority, has been of great importance. Naturally at first such tests were both crude in method and variable in result. The fabric was submitted principally to a rigid inspection and its excellence or inferiority was established by the personal opinion of the observer. It of course followed that such superficial tests resulted in disputes and misunderstandings, and for many years the testing of textiles consisted largely of personal estimates combined with considerable wrangling and invective.

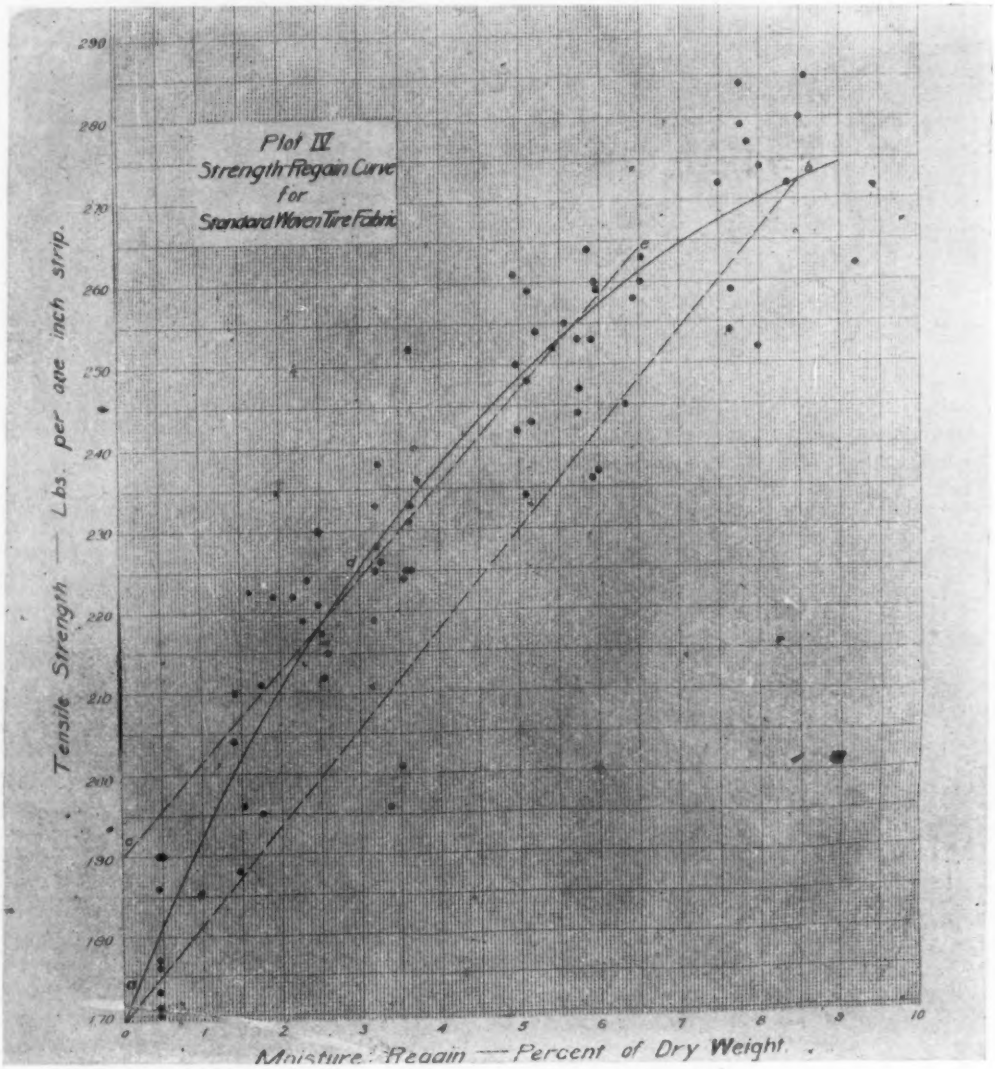


Fig. 1.

It became very evident that machines and methods must be perfected depending not upon the personal opinion or accuracy of the observer but rather upon the scientific data obtained by testing machines and appliances of refined character. At first these took the form of such simple pieces of apparatus as fine balances, twist counters, gauge or thickness measures and illuminated tables for the better inspection of yarn, twist and weave. By means of these simple instruments many questions in regard to uniformity, excellence of fiber and final weight and thickness of the product, were and still are satisfactorily answered. With the advent of the canvas belt, the pneumatic tire and the wings and bags of air craft, a totally new division of textile fabrics was called into existence. Fabrics which were to be devoted to these purposes must needs be of greater uniformity, strength and rigidity than had heretofore been known.

*A paper presented before Committee D-13 at Greenville, S. C.

†In charge of the Textile Laboratory, Massachusetts Institute of Technology.

APPENDIX I
TABLE III
Corrected Tensile Strength
of
Fabric and Yarn
at Various Moisture Regains.

Moisture Regain in Fabric or Yarn - Percent of Dry Weight.

Apparent Tensile Strength lbs.	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25	6.50
5	4.9	4.9	4.7	4.7	4.6	4.6	4.5	4.4	4.3	4.2	4.2	4.2	4.1	4.1	4
10	11.8	11.6	11.5	11.5	11.2	11.1	10.9	10.8	10.7	10.6	10.5	10.3	10.2	10.1	10
15	17.7	17.4	17.2	17.0	16.8	16.6	16.4	16.2	16.0	15.9	15.7	15.5	15.3	15.2	15
20	23.6	23.2	22.9	22.7	22.4	22.2	21.9	21.6	21.4	21.3	20.9	20.7	20.4	20.2	20
25	29.5	29.1	28.7	28.4	28.0	27.7	27.4	27.0	26.7	26.4	26.1	25.8	25.5	25.3	25
30	35.5	34.9	34.5	34.0	33.6	33.3	32.8	32.5	32.1	31.7	31.4	31.0	30.7	30.3	30
35	41.4	40.7	40.2	39.7	39.2	38.8	38.3	37.9	37.4	37.0	36.6	36.2	35.8	35.4	35
40	47.3	46.5	46.0	45.4	44.8	44.3	43.8	43.3	42.8	42.3	41.8	41.3	40.9	40.4	40
45	53.0	52.3	51.7	51.1	50.4	49.8	49.3	48.7	48.1	47.6	47.0	46.5	46.0	45.5	45
50	58.9	58.1	57.5	56.7	56.0	55.4	54.7	54.1	53.5	52.9	52.3	51.7	51.1	50.5	50
55	64.8	63.9	63.2	62.4	61.7	60.9	60.2	59.5	58.8	58.1	57.5	56.9	56.2	55.6	55
60	70.7	69.8	68.9	68.1	67.3	66.5	65.7	64.9	64.1	63.4	62.7	62.0	61.3	60.7	60
65	76.6	75.6	74.7	73.8	72.9	72.0	71.1	70.3	69.5	68.7	67.9	67.2	66.4	65.7	65
70	82.5	81.4	80.4	79.4	78.5	77.5	76.6	75.7	74.8	74.0	73.2	72.3	71.5	70.8	70
75	88.3	87.2	86.2	85.1	84.1	83.1	82.1	81.1	80.2	79.3	78.4	77.5	76.6	75.8	75
80	94.2	93.0	91.9	90.8	89.7	88.6	87.6	86.5	85.5	84.6	83.6	82.7	81.8	80.9	80
85	100.1	98.9	97.7	96.4	95.3	94.1	93.0	91.9	90.9	89.9	88.9	87.9	86.9	86.0	85
90	106.0	104.7	103.4	102.1	100.9	99.7	98.5	97.4	96.3	95.1	94.1	93.0	92.0	91.0	90
95	111.9	110.5	109.2	107.8	106.6	105.4	104.0	102.8	101.6	100.4	99.3	98.2	97.1	96.0	95
100	117.8	116.3	114.9	113.5	112.1	110.8	109.4	108.2	106.9	105.7	104.5	103.3	102.2	101.1	100
105	123.7	122.1	120.6	119.1	117.7	116.3	114.9	113.6	112.3	111.0	109.7	108.5	107.3	106.1	105
110	129.6	127.9	126.4	124.8	123.3	121.8	120.4	119.0	117.6	116.3	115.0	113.7	112.4	111.2	110
115	135.5	133.7	132.1	130.5	128.9	127.4	125.9	124.4	123.0	121.6	120.2	118.8	117.5	116.2	115
120	141.4	139.6	137.9	136.2	134.5	132.9	131.3	129.8	128.3	126.8	125.4	124.0	122.6	121.3	120
125	147.3	145.4	143.6	141.8	140.1	138.4	136.8	135.2	133.7	132.1	130.6	129.2	127.8	126.4	125
130	153.1	151.2	149.3	147.5	145.7	144.0	142.3	140.6	139.0	137.4	135.9	134.5	132.9	131.4	130
135	159.0	157.0	155.1	153.2	151.3	149.5	147.8	146.0	144.4	142.7	141.1	139.5	138.0	136.5	135
140	164.9	162.8	160.8	158.9	156.9	155.1	153.2	151.4	149.7	148.0	146.3	144.7	143.1	141.5	140
145	170.8	168.6	166.6	164.5	162.5	160.6	158.7	156.8	155.0	153.2	151.5	149.8	148.2	146.6	145
150	176.7	174.5	172.3	170.2	168.1	166.1	164.2	162.3	160.4	158.6	156.8	155.0	153.3	151.6	150
155	182.5	180.3	178.1	175.9	173.7	171.7	169.6	167.7	165.8	163.9	162.0	160.2	158.4	156.7	155
160	188.4	186.1	183.8	181.6	179.4	177.2	175.1	173.0	171.1	169.1	167.2	165.4	163.6	161.7	160
165	194.4	191.9	189.5	187.2	184.9	182.7	180.6	178.5	176.4	174.4	172.4	170.5	168.6	166.8	165
170	200.3	197.7	195.3	192.9	190.6	188.3	186.1	184.0	181.8	179.7	177.7	175.7	173.8	171.9	170
175	206.1	203.5	201.0	198.6	196.2	193.8	191.5	189.3	187.1	185.0	182.9	180.9	178.9	176.9	175
180	212.0	209.2	206.6	204.2	201.6	199.4	197.0	194.7	192.5	190.3	188.1	186.0	184.0	182.0	180
185	217.9	215.1	212.5	209.9	207.4	204.9	202.5	200.1	197.8	195.6	193.3	191.2	189.1	187.0	185
190	223.8	220.9	218.3	215.6	213.0	210.4	208.0	205.6	203.2	200.9	198.6	196.4	194.2	192.1	190
195	229.7	226.8	224.0	221.3	218.6	216.0	213.4	210.9	208.5	206.1	203.8	201.5	199.3	197.1	195
200	235.6	232.6	229.8	226.9	224.2	221.5	218.9	216.3	213.8	211.4	209.0	206.7	204.4	202.1	200
205	241.5	238.4	235.6	232.6	229.8	227.1	224.4	221.8	219.2	216.7	214.2	211.9	209.5	207.2	205
210	247.4	244.2	241.3	238.3	235.4	232.6	229.8	227.2	224.5	222.0	219.5	217.0	214.6	212.3	210
215	253.3	250.0	247.0	244.0	241.0	238.1	235.3	232.6	229.9	227.3	224.7	222.2	219.7	217.3	215
220	259.2	255.9	252.7	249.6	246.6	243.7	240.9	238.0	235.2	232.5	229.9	227.4	224.9	222.4	220
225	265.1	261.7	258.5	255.3	252.3	249.4	246.5	243.7	240.9	238.2	235.5	232.8	230.2	227.5	225
230	270.9	267.5	264.3	261.0	257.9	254.7	251.7	248.8	245.9	243.1	240.4	237.7	235.1	232.5	230
235	276.8	273.3	270.0	266.7	263.4	260.3	257.2	254.2	251.3	248.4	245.6	242.9	240.2	237.6	235
240	282.7	279.1	275.7	272.3	269.0	265.8	262.7	259.6	256.6	253.7	250.8	248.0	245.3	242.6	240
245	288.6	285.0	281.4	278.0	274.6	271.4	268.1	264.9	262.0	259.0	256.1	253.2	250.4	247.7	245
250	294.5	290.7	287.2	283.7	280.1	276.9	273.6	270.4	267.3	264.3	261.3	258.4	255.6	252.7	250
255	300.4	296.6	292.9	289.3	285.8	282.4	279.1	275.8	272.7	269.5	266.5	263.5	260.6	257.8	255
260	306.3	302.4	298.7	295.0	291.5	288.0	284.6	281.2	278.0	274.8	271.7	268.7	265.7	262.8	260
265	312.1	308.2	304.4	300.7	297.1	293.5	290.0	286.7	283.4	280.1	277.0	273.9	270.8	267.9	265
270	318.1	314.0	310.2	306.4	302.6	299.0	295.5	292.1	288.7	285.4	282.2	279.0	276.0	272.9	270
275	323.9	319.8	315.9	312.0	308.3	304.6	301.0	297.5	294.0	290.7	287.4	284.2	281.1	278.0	275
280	329.8	325.6	321.7	317.7	313.9	310.1	306.5	302.9	299.4	296.0	292.6	289.4	286.2	283.1	280
285	335.7	331.5	327.6	323.4	319.5	315.7	311.9	308.3	304.7	301.3	297.9	294.6	291.3	288.1	285
290	341.6	337.5	333.5	329.1	325.1	321.2	317.4	313.7	310.1	306.6	303.1	299.7	296.4	293.2	290
295	347.6	343.1	339.2	334.7	330.7	326.7	322.9	319.1	315.4	311.9	308.5	305.1	301.8	298.5	295
300	353.4	348.9	344.8	340.4	336.3	332.3	328.3	324.5	320.7	317.1	313.5	310.0	306.6	303.3	300
305	359.3	354.7	350.6	346.1	341.9	337.8	333.8	329.9	326.1	322.4	318.8	315.2	311.7	308.3	305
310	365.2	360.5	356.1	351.8	347.5	343.3	339.2	335.3	331.4	327.7	324.0	320.4	316.8	313.4	310
315	371.1	366.4	361.9	357.4	353.1	348.9	344.8	340.7	336.8	333.0	329.2	325.5	321.9	318.4	315
320	376.9	372.2	367.6	363.1	358.7	354.4	350.2	346.1	342.2	338.3	334.4	330.7	327.1	323.6	320
325	382.8	378.0	373.5	368.8	364.5	360.0	355.7	351.6	347.5	343.5	339.7	336.0	332.2	328.5	325
330	388.7	383.8	379.1	374.4	369.9	365.5	361.2	357.0	352.8	348.8	344.9	341.0	337.3	333.6	330
335	394.6	389.6	384.8	380.1	375.5	371.0	366.7	362.4	358.2	354.1	350.1	346.2	342.4	338.8	335
340	400.5	395.4	390.6	385.8	381.1	376.6	372.1	367.8	363.5	359.4	355.3	351.4	347.5	343.7	340
345	406.4	401.3	396.3	391.5	386.7	382.1	377.5	373.2	368.9	364.8	360.6	356.5	352.6	348.8	345
350	412.3	407.1	402.1	397.1	392.3	387.6	383.1	378.6	374.2	370.0	365.8	361.7	357.7	353.8	350
355	418.2	412.9	407.8	402.8	397.9	393.2	388.6	384.0	379.6	375.2	371.0	366.9	362.9	358.9	355
360	424.1	418.7	413.6	408.5	403.6	398.7	394.0	389.4	384.9	380.6	376.2	372.0	367.9	363.9	360
365	429.9	424.5	419.3	414.2	409.2	404.3	399.5	394.8	390.3	385.9	381.5	377.2	373.1	369.0	365
370	435.8	430.2	425.0	419.8	414.8	409.9	405.0	400.2	395.6	391.1	386.7	382.4	378.2	374.0	370
375	441.7	436.0	430.8	425.5	420.4	415.5	410.4	405.6	401.0	396.4	391.9	387.5	383.3	379.1	375
380	447.6	441.8	436.5	431.2	426.0	420.9	415.9	411.1	406.3	401.7	397.1	392.7	388.4	384.1	380
385	453.5	447.8	442.3	436.9	431.6	426.4	421.4	416.5	411.7	407.0	402.4	397.9	393.5	389.2	385
390	459.4	453.6	448.0	442.5	437.2	432.0	426.9	421.9	417.0	412.2	407.6	403.0	398.6	394.3	390
395	465.3	459.4	453.8	448.2	442.8	437.5	432.3	427.3	422.3	417.5	412.8	408.2	403.7	399.3	395
400	471.2	465.2	459.5	453.9	448.4	443.0	437.8	432.7	427.7	422.8	418.0	413.4	408.8	404.4	400

Fig. 2.

Not only must the fiber itself be of considerable excellence, but its shaping into the fabric must be of mechanical exactness. These fabrics were therefore denoted as "mechanical fabrics" and immediately constituted a class by themselves. The appearance and beauty of such fabrics is naturally of minor importance, while their strength, rigidity and wearing ability are prime requisites. While the tensile strength of a fabric is rarely, if ever, used as a direct quantity in the design of any machine or appliance using such fabrics, it nevertheless constitutes at the present time the best property on which to base the excellence or inferiority of a given textile. While tensile strength is not by any means everything, the comparison of this quantity, together with the elasticity or stretchiness of the fabric, forms the best basis to date on which to judge the product.

It is certainly conceivable that in the future other machines and methods for testing fabric may be devised in which the basis of estimate is the wearing ability of the fabric or, very possibly, its ability to resist a repeated application of stress.

In line with the above suggestions many interesting and accurate tensile testing machines have been designed

for use upon fabrics. These consist essentially of a pair of jaws for grasping and holding the textile specimen with as little injury to it as possible. One jaw is moved away from the other by means of power driven screw and gear trains. The other jaw by attachment to a weighing scale, comprised either of springs or dead weights, measures and registers upon a dial the breaking strength of the material. It has been found by careful experiment that dead weights constitute a better and more permanent means of measuring the strength than do springs. For this purpose an inclined

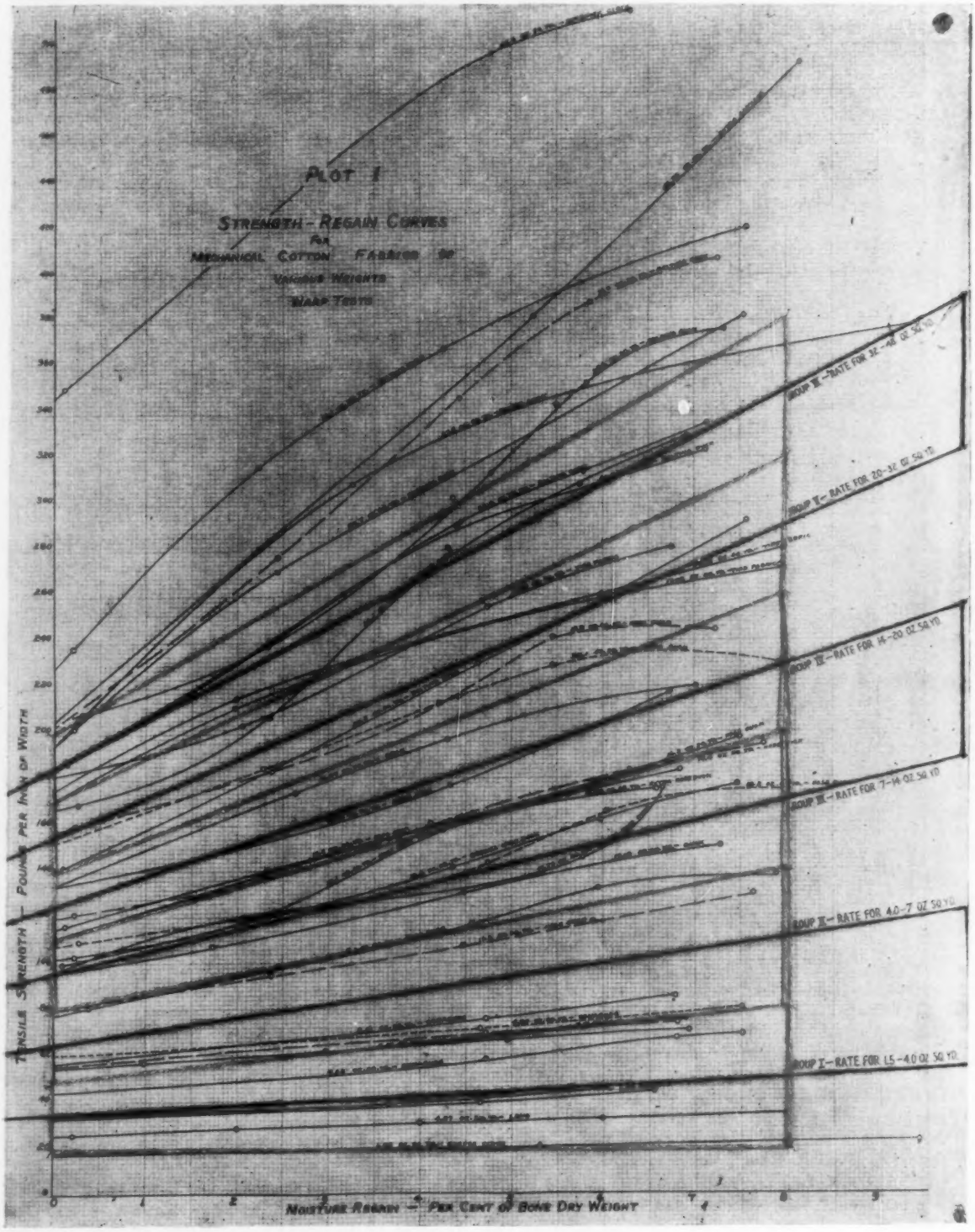

PLOT I
STRENGTH - REGAIN CURVES
FOR
MECHANICAL COTTON FABRICS OF
VARIOUS WEIGHTS
WARP TESTS
GROUP III - RATE FOR 20-32 OZ 50 YD
GROUP III - RATE FOR 14-20 OZ 50 YD
GROUP III - RATE FOR 7-14 OZ 50 YD
GROUP II - RATE FOR 4.0-7 OZ 50 YD
GROUP I - RATE FOR 1.5-4.0 OZ 50 YD
TENSILE STRENGTH - POUNDS PER INCH OF WIDTH
MOISTURE REGAIN - PER CENT OF BONE DRY WEIGHT

Fig. 3.

pendulum seems to be at present the best and most accurate solution.

It was early noted that the speed with which the load was applied to the textile very seriously affected the apparent tensile strength. This might naturally be expected, since the overlapping and intertwining of fibers in the fabric would produce failure by slippage rather than by breakage. Consequently the rate of slippage of the fibers upon one another was soon seen to be of great importance. For that reason the rate of jaw speed must needs be definitely established. Most specifications place this at twelve inches per minute.

Even this regulation, however, does not wholly settle the question, since the rate at which a testing machine load may be applied to the specimen under test, depends not only on the jaw speed but the elasticity or "give" of the fabric. It is therefore very desirable in the future that testing machines shall be designed of such a character as to apply the load to the specimen at a uniform rate of so many pounds per second irrespective of the stretchiness of the sample. This has been done practically and successfully in some of the latest form of textile testing machines.

In order to still further reduce fabric testing to a definite and exact result, many testing machines have been devised within the last few years where the breaking strength, as well as the stretch of the specimen, is autographically recorded in indelible ink upon a paper diagram. Such autographic machines are of great excellence and value since they not only record in a visible manner the behavior of the fabric under load but preserve as well a definite and truthful record of the testing performance. Such a record is proof against both dishonesty and ignorance and gives the best possible answer to the manufacturer regarding the character of his fabric.

It is sincerely to be hoped that testing machines will soon be devised whereby the ability of the fabric to resist wear may be accurately and scientifically measured. It would appear easy enough upon the surface to design a machine which would rub the fabric with some standard abradant until the former was partially or completely worn out. The actual performance of such machines, however, is beset by many difficulties. The character and permanence of the rubber or abradant is of great importance. Most abradants soon become "loaded" or clogged with worn fibers and dirt and are valueless after a few moments use. Again, the exact tension in the fabric must be known and maintained and the pressure between the abradant and the fabric must similarly be fixed. The speed of rubbing has much to do with the results, while the condition of the specimen with regard to moisture may cause a wide variation in the results. The question of abrasive tests upon fabrics is therefore as yet practically unsolved. It would seem, however, that such a basis of estimate would be fairer and more decisive than anything heretofore employed.

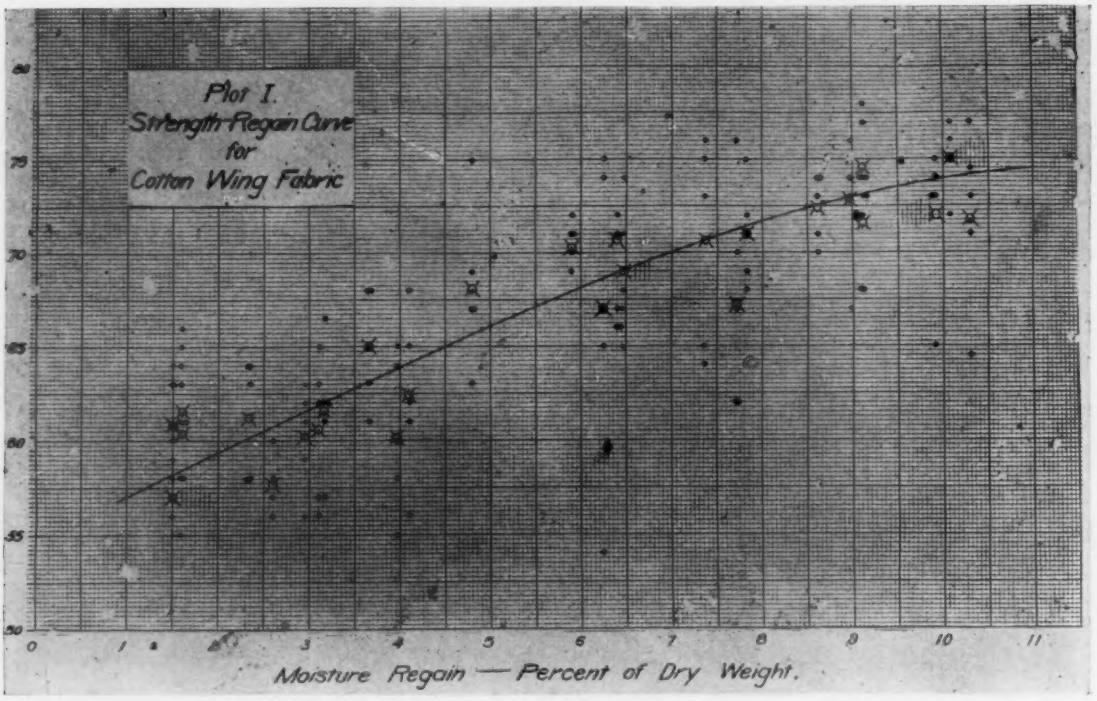


Fig. 4.

As soon as textiles began to be tested for tensile strength it became evident that the amount of moisture present in the specimen had much to do with the apparent tensile strength. For many years this was evaded as an unsolved, and indeed unsolvable question. It became perfectly well known that vegetable fibers in a dry state when manufactured into fabrics were of much less strength than those having a high degree of moisture. But the amount of this increase due to moisture remained a sealed question for many years and it is only within the last ten years that the various laboratories and schools of the country have taken serious hold of this question. It was also noted long ago that oily fibers, such as those of animal origin, were weakened by the presence of moisture in their manufactured form. For a long time it was supposed that the water in the fiber imparted to it a chemical change which reduced

its structural strength. Later this idea was doubted and it came to be the common belief that the moisture present upon the surface of waxy fibers, such as those of vegetable origin, increased the coefficient of friction and rendered them less liable to slip upon one another. This is reasonable since waxy substances when moist "scrub" with more difficulty than when dry. In a precisely similar manner the presence of moisture in oily fibers reduced the coefficient of friction, making them more liable to slip upon one another.

It is of course evident that in order to reduce this question to anything like a scientific method, a great amount of experimental work must be done upon the various fibers under wide variation in moisture content. While there is yet much experimental work to be done in this direction, many of the more important mechanical fabrics have been investigated as regards moisture effects.

Three methods of procedure have been proposed to take care of this troublesome question: First, numerous laboratories have sought to eliminate entirely the question of moisture by drying the specimens to be tested to a condition of zero moisture. This is known as the "bone dry method" and naturally reduces very greatly the apparent tensile strength of the fabric. A bone dry specimen, if subjected for even a fraction of a minute to atmospheric air, will pick up or "regain" its moisture with surprising rapidity. It was soon seen that bone dry tests were not very uniform and that any delay between the oven and the testing machine resulted in higher strength figures and generally more irregularity in the results. The speed necessary in such tests naturally introduced many irregularities in the insertion of the fabric between the jaws. For these very good reasons the bone dry method of testing has been largely discarded. The figures given by such tests on all usual vegetable fibers are so low as to prevent even approximate comparison with those obtained under natural conditions.

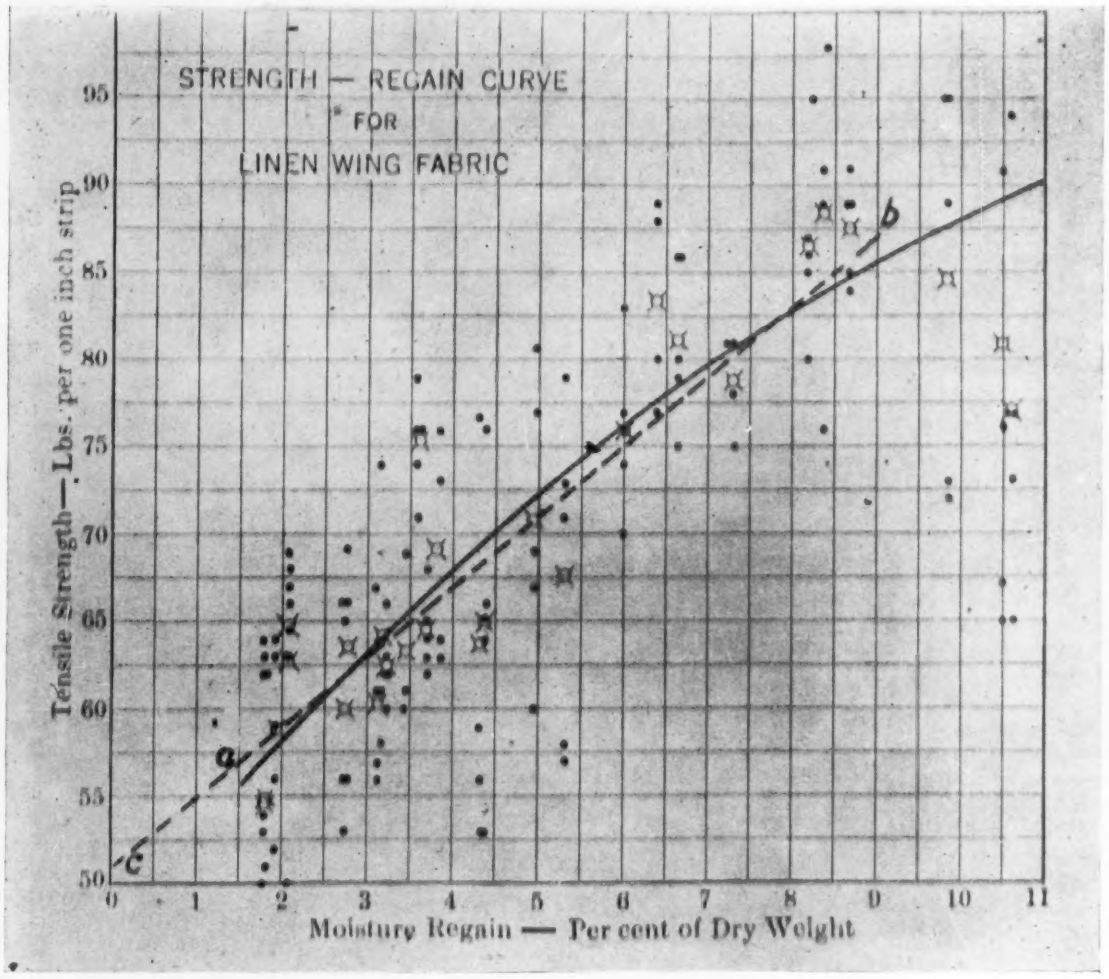


Fig. 5.

The next step in solving this difficult question was to propose that a small chamber or compartment be devised in which the fabric to be tested can be "conditioned" or brought to equilibrium in regard to moisture. For this purpose a "standard atmosphere" was adopted by the Bureau of Standards and others, having a temperature of 70 degrees Fahr., and a humidity of 65 per cent relative to saturation. At first small cabinets or cupboards were used for this purpose and the fabric thus conditioned was removed for insertion and test in the machine. This was soon found to be but little improvement upon the bone dry method since the transition from the cabinet to the machine was accom-

panied by the same rapid gains or losses that were the case in the bone dry method. Also such a conditioning chamber holding but a few cubic feet of atmospheric air, proved very difficult to hold steady at definite temperature and humidity. While this method is occasionally used at present, it is much to be preferred that the conditioning cabinet be made large enough to constitute the entire laboratory with accommodations for the testing machines and operators within it. The comparatively large volume of conditioning rooms ministers to the stability and the tests may be carried out with accuracy and deliberation. Most testing laboratories are therefore under humidity and temperature control. In northern latitudes this can be accomplished during about eight months of the year by use of the ordinary house heating thermostat and one of the various psychrostats on the market for cotton mill use. These instruments will raise the temperature and humidity to a desired limit, holding it there with considerable accuracy for long periods. For all the year round use and for warm climates, it is necessary to resort to refrigerating apparatus of a more or less extended type to cool the air and reduce the natural humidity to the standard amount. Such systems are not very expensive at present and can be run with but little attention from ordinary mill electric circuits.

Without much doubt, this method of atmospheric control is the most accurate and satisfactory of any. The expense, however, is considerable and the superintendence of it must be thorough in order to get useful results. Comparatively few laboratories have humidifying apparatus and it is doubtful whether this method will ever come into very extensive use in practical manufacturing plants.

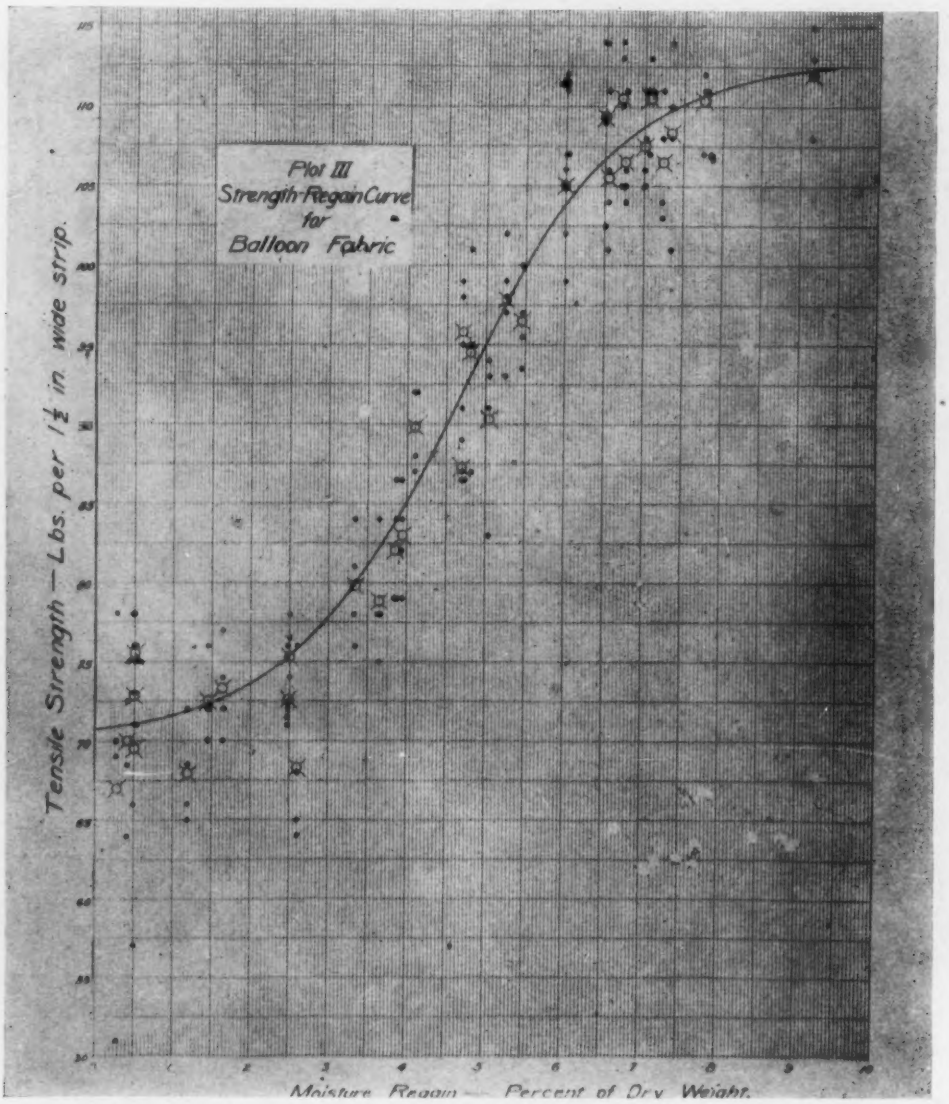


Fig. 6.

A third method more widely used than either of the above consists of testing the fabric at any ordinary condition of humidity and then of correcting the results after determining the actual amount of moisture present. In this manner a roll of fabric taken from a freight car may be sampled at the beginning, middle and end. The swatches are sometimes hung in the testing room for an hour or two to even

up their moisture condition. They are then tested in the ordinary manner with as much deliberation as desired. The fragments of the tensile samples, immediately after the test, are weighed in the aggregate, are then bone dried at a temperature slightly above boiling and again weighed. The difference in weight divided by the weight of the dry samples gives the "regain" moisture. By reference to a table, the tensile strength thus determined may be corrected slightly so as to bring the samples comparatively to a standard condition. Most closely woven fabrics will absorb 6½ per cent of their dry weight in the form of moisture. Fleece cotton will pick up 8½ per cent. Many testing societies have therefore established 6½ per cent as the standard regain for manufactured cotton and 8½ for raw cotton. The reason for this difference lies of course in the fact that the fabric in manufactured cotton goods is not exposed to the effects of the atmosphere to nearly such an extent as it is in fleece cotton.

Of course the value of such a method of correction rests in the accuracy of the tables by which the correction is made. These tables must be calculated from the results of numerous experiments and such experiments must be performed with extreme accuracy.

The writer has had an opportunity to perform very many tests of this character. One of the first was upon moisture effects in square woven automobile tire fabric. This fabric, as is well known, consists of eleven ply yarn, 23 per inch both warp and filling and weighing 17¼ oz. per square yard standard. From such fabric about one hundred and fifty strip samples were cut and tested at various grades of humidity, from bone dry to practically saturation. The varying strength plotted against the percentage regain gives a curve or graph which represents the behavior of the fabric due to moisture. Fig. 1 illustrates the results of these primitive experiments. Of course great care was necessary in bringing the samples to a wide range of moisture regain. At the left end of the curve the samples were brought very nearly to a bone dry condition and exposed to the atmosphere for a few seconds only. Immediately after breakage the fragments were enclosed in an air tight glass capsule and weighed in their precise condition. After bone drying the fragments the same were weighed again, the difference between the two giving the exact moisture. At the right hand end of the curve the samples were brought to a high degree of moisture absorption by long exposure in an atmosphere very near saturation. It is seen from the graph that the effect of moisture is to increase the strength in a manner represented by the curved line. In practice the lower end of this curve as well as the upper is rarely met with. The central portion, viz., from about 3 per cent to 6½ per cent regain, is the region usually encountered in practice. Through this region the behavior of the fabric is very approximately represented by a straight line. This straight line then represents the law of the fabric with regard to moisture. It is evident that one per cent increase in moisture corresponds to about 7 per cent increase in strength.

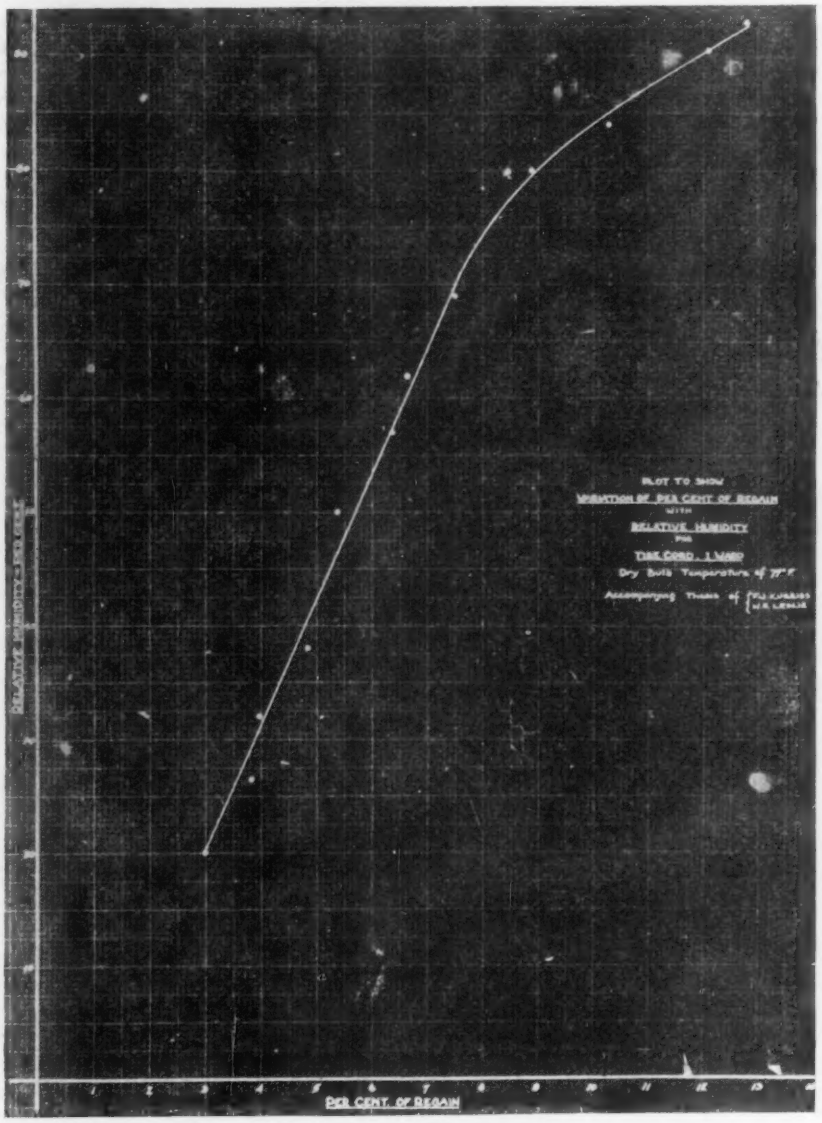


Fig. 7.

To render this useful the accompanying arithmetical table, Fig. 2, has been compiled. If a piece of fabric is tested directly from the roll without knowledge of the

amount of moisture present the readings from the dial of the machine are liable to be somewhat in error. By weighing the fragments in their natural and again in their bone dry condition the actual amount of moisture present in the average may be determined. By consulting the column headed with this percentage of moisture the reading on the dial of the machine may be corrected to such a figure as full regain at 6½ per cent. This of course assumes that the fabric behaves under moisture as was illustrated by the curve and experiments described above. At first this was considered to be a questionable method but has since been adopted by many large concerns, its accuracy having been established by many other experiments in numerous laboratories. The criticism might be made that this table is applicable strictly to 17¼-ounce tire fabric alone and would be in error if used outside of this region. In a sense this is true but the error is very small for the usual run of mechanical fabrics.

moisture for the fabrics in that sector. It is hoped soon to complete six arithmetical tables whereby any fabric ranging from 1½ to 48 ounces per square yard in weight can be intelligently corrected for the moisture present.

It is not a very difficult task to construct such tables when the experimental data which forms their basis is at hand. Such tables have already been compiled for tire cords, wing linen, wing cotton, jute, hemp and Manila. The characteristic curves of some of these fabrics are shown in the accompanying illustrations, Figs. 4, 5, 6 and 7.

There still remains much experimental work to be performed with relation to yarn. The curve of moisture effects has been plotted for No. 28s sheeting yarn but not for very many other numbers. Naturally the moisture effect is more pronounced in heavy, tightly twisted yarns than in fine and loose yarns. Cords and ropes participate in this general scheme of behavior in a manner similar to fabrics.

As was remarked early in this paper, the effect of mois-

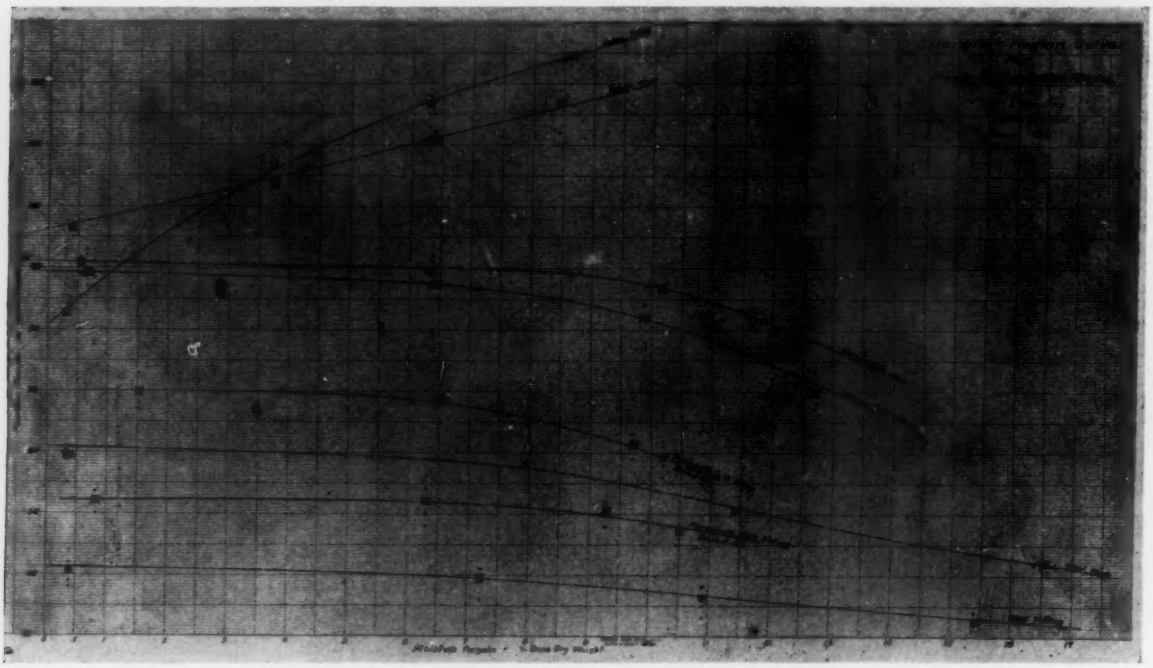


Fig. 8.

Further experiments have shown that gauzes and light sheetings show a very small increase in strength due to moisture, while the reverse is true for heavy belting ducks and strainer cloths. In order to make a comparison of the moisture effect in a wide range of fabric, all the experiments made at the Institute of Technology in the last 15 years in this direction have been plotted upon one graph. These range from gauzes at 1½ ounces per square yard. With the expectation of presenting in the future an extension of the table in Fig. 2 for tire fabric, the entire range from 1½ ounce to 48 ounces per square yard has been divided into six zones or sectors. These are illustrated in Fig. 3. Tire fabric would lie in the fourth zone, gauzes in the first, wing fabric and light sheetings in the second, light ducks in the third, and belting ducks in the fifth and sixth. At the center of each of these sectors or zones is drawn a "rate line" which indicates the average increase due to

ture upon animal fibers is the reverse of that upon vegetable. The frictional hold of wooly and hairy fibers is relaxed by the presence of moisture. Fig. 8 illustrates the behavior of ordinary blue worsted serge under varying degrees of moisture. Silk, both raw and boiled off, in the form of fabric follows a similar law of decrease. The silk samples were the usual type of parachute fabric. The latest experiments that have been made are those upon artificial silk. These were performed for the most part by the serigraph method. The effect of moisture is to cause a pronounced decrease in strength, due here in all probability to quite a different action from that of natural cotton, wool or silk fibers. Artificial silk is of course derived from mechanically formed strands of chemical cellulose. Moisture lowers the tensile strength of cellulose strands probably from a disintegration of the fiber rather than by simply reducing

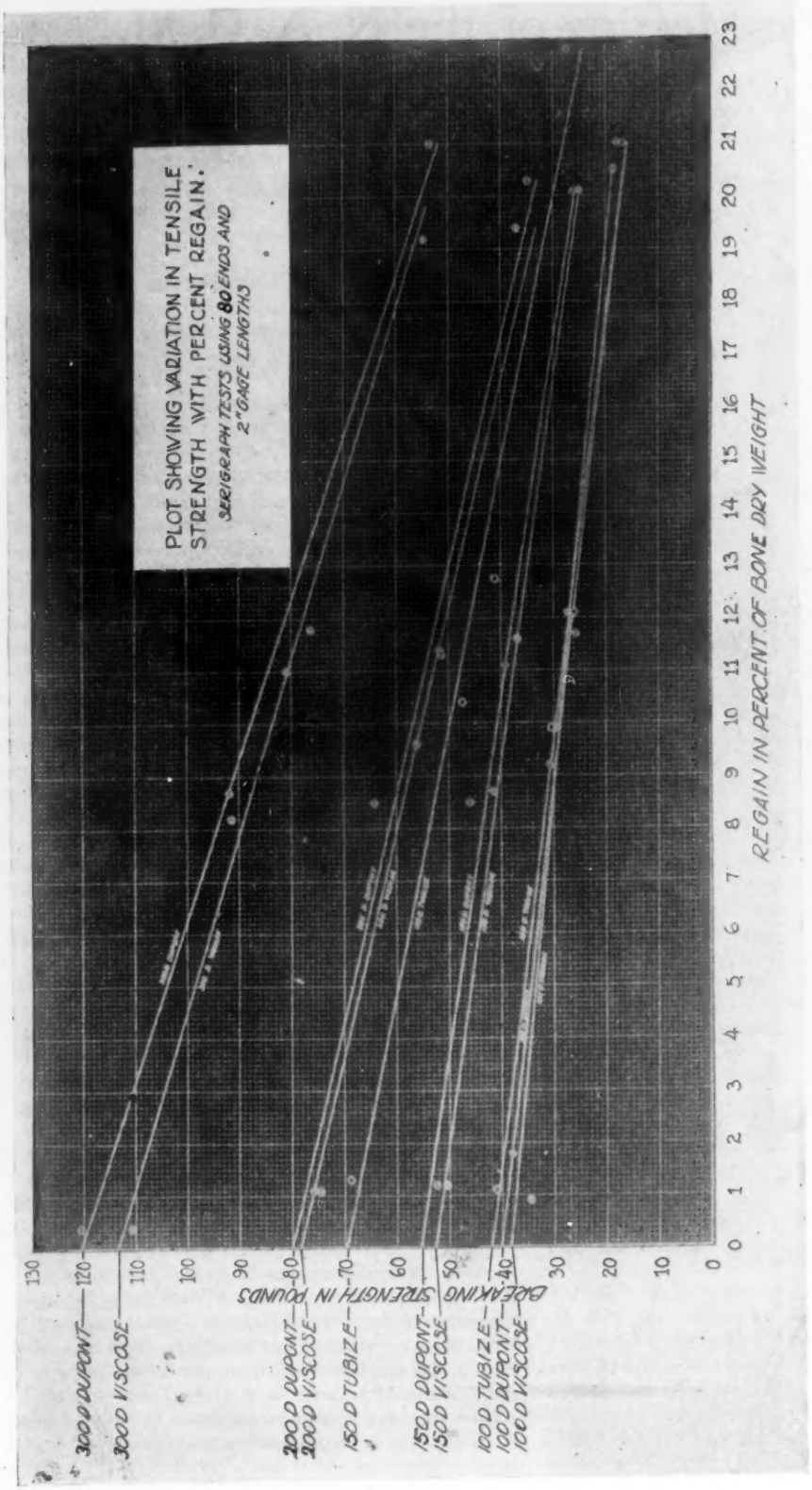

PLOT SHOWING VARIATION IN TENSILE STRENGTH WITH PERCENT REGAIN.
SERIGRAPH TESTS USING 80 ENDS AND 2" GAGE LENGTHS
REGAIN IN PERCENT OF BONE DRY WEIGHT
BREAKING STRENGTH IN POUNDS
300 D DUPONT
300 D VISCOSE
200 D DUPONT
200 D VISCOSE
150 D TUBIZE
150 D DUPONT
150 D VISCOSE
100 D TUBIZE
100 D DUPONT
100 D VISCOSE

Fig. 9.

the coefficient of friction. Fig. 9 illustrates our latest experiments in this direction. Many more experiments will be needed before we are able to deduce a general law for artificial silk similar to that for cotton.

A line of medium pressure bronze globe and angle valves for 225 pounds working steam pressure is announced by Jenkins Bros. They have been designed to fulfill a need for a valve with the renewable disc feature which will satisfactorily meet higher pressures than recommended for standard pattern valves. An important feature of these valves is the bonnet and union, made in one piece to screw on to the outside of the body threads. This construction gives added strength to the body end, the bonnet hex agons being made especially large allow easy removal of the bonnet without distortion.

Of special interest is the "ball joint" formed when the bonnet and body are screwed together. This is a new feature, designed by Jenkins Bros., which makes a very strong, though easily removable joint.

These valves are regularly fitted with the Jenkins Special No. 800 composition disc for high pressure work. The spindle is made of manganese bronze, with large, powerful threads which are all in contact when the valve is closed. The stuffing box is deep, with plenty of asbestos packing which is compressed by means of a bronze follower. A ventilated hand wheel of malleable iron is used. These valves may be secured in globe and angle with screwed or flanged ends, and sizes of ¼ inch to 3 inches.

Boston Meeting of the N. A. C. M.

The National Association of Cotton Manufacturers held its 119th annual meeting at the Copley-Plaza Hotel, Boston, Massachusetts, on Wednesday and Thursday, October 14th and 15th. The program arranged reflected consideration of subjects of vital current interest. A "Style Show" which was both interesting and valuable was an event of Wednesday evening. On Thursday the meeting was given over to an open forum for the discussion of "Anything Pertaining to the Cotton Industry." This new feature attracted unanimous interest, a guarantee of non-publicity to the discussions being made by the Association.

Wednesday afternoon brought the first formal gathering of the Association, following the registration on Wednesday morning. President Morgan Butler presided. The report of Secretary Harry C. Meserve, read by Robert Amory because of Mr. Meserve's illness, was the first feature. This report drew attention to the detailed activities of the Association office during the past year. The work of the statistical and technical departments of the Association in connection with textile specifications, and other activities of the organization were outlined. Reports of the treasurer and standing committees, together with several announcements, next followed.

The address of President Butler was then delivered. He first discussed the tariff and import situation, declaring that "it is evident that tariff rates on many classes of goods are too low, although there may be possibly at short intervals a demand which our mills can supply at little or no profit; but the industry cannot go on and be prosperous under such conditions unless there is an improvement." Regarding crop reports, he reported little progress had been made toward securing a revision in the practice of the Department of Agriculture and Census Bureau in cotton crop reports, for "it seemed to be hopeless to impress on government officials the utter uselessness of the service which is now being performed, and to make them realize the real damage to business caused by their practices." In conclusion he expressed his belief in the ability of the cotton manufacturing industry to work cooperatively in joining into concerted action where community of interest prevails.

The concluding part of the session was a discussion on merchandising problems, conducted by John S. Lawrence. John E. Rousmaniere was the first speaker. He outlined the steps already taken by the Association of Cotton Textile Merchants in cooperation with southern mills to secure statistics relating to production, stocks on hand, sales, etc., on certain classes of goods. Louis E. Kirstein, of William Filene's Sons Co., next discussed the viewpoint of the retailer in the distribution scheme. He criticized the manufacturers' methods of merchandising, and suggested better sales organizations for American-made goods. He buys foreign goods, he said, because the public wants them and because it is his duty to provide what the public wants, "and unless the New England merchandise manufacturer has a product much better or somewhat better, either in quality or price—and I think more particularly in quality—than that made elsewhere, they will buy the merchandise made elsewhere." Frederick H. Curtis, president of the Federal Reserve Bank of Boston, was the final speaker of the session. He pointed out the value of statistics in industry, and drew attention to the service rendered by the Federal Reserve Board and Federal Reserve Banks in making statistical reports.

A "Style Show and Cabaret" was the feature of Wednesday evening. In the exhibit, member mills of the Association staged a display of their products which showed a wide and extensive variety of goods made into the gowns worn by living models. Dancing was enjoyed by the diners prior to the exhibition.

The Thursday sessions were given over entirely to a discussion of "Anything Pertaining to the Cotton Industry" and formal business. As stated, the discussion was conducted under a guarantee of no publicity other than the Association official proceedings.

At the conclusion of the afternoon session, the resolutions committee reported. In addition to the customary thanks, a resolution was adopted urging Congress to amend the present law on cotton crop estimates to provide that no estimate of the size of the cotton crop be made by any agency of the Government before some date when the crop is sufficiently advanced to make possible a reasonably accurate estimate. Election of officers was next held, the report of the nominating committee being unanimously adopted, as follows: President, William B. MacColl; first vice-president, Russell H. Leonard; second vice-president, John A. Sweeter; directors for three years, C. F. Broughton, A. E. Colby, Philip Dana, J. A. Perkins, and J. O. Thompson, Jr.; for one year, Dexter Stevens; representative on National Council of American Cotton Manufacturers, Russell H. Leonard.

The convention was concluded with the traditional banquet on Thursday evening, with the new president, Mr. MacColl, as toastmaster. The president made some brief preliminary remarks. Regarding southern competition, he stated that this in the last few years "has been more keenly felt and has extended to finer goods. We in the North sincerely congratulate our southern friends on the wonderful development of their textile plants. * * * Northern manufacturers recognize that textile problems will no longer be sectional, but in a large measure, national, and we desire the closest spirit of cooperation with the South in the solution of matters pertaining to our common interests." While keen competition in the sale of merchandise will exist, this should not be carried to the extent of creating unprofitable business for all. As time goes on, North and South will undoubtedly adjust themselves to the manufacture of that product for which they are best suited economically and geographically. Mr. MacColl commented upon the greater attention to intelligent merchandising and market conditions; upon the improved situation in the industry; the establishment of universal standards of grades of cotton; the need for decreasing speculation and uncertainty in the cotton market; and other matters. With regard to the tendency toward standardization of production, he said that "in many branches of cotton manufactures, there is a movement in the opposite direction, namely, diversification—the result largely of fickleness of fashion. There would, in my opinion, be many advantages for cotton mills that produce staple goods to combine in larger units, which might result in many economies and greater ability to extend the export business. On the other hand, smaller units may be better adapted for diversified production to meet continual changes in styles and fabrics." He concluded by reference to the

resources of the Association at the command of the members, and an urge for more cooperation with it on the part of the mills.

The principal speaker of the banquet was Colonel F. Vernon Willey, who addressed the banquet on international problems.

The Bleaching, Dyeing and Finishing of Cotton Fabrics Containing Rayon*

BY R. W. ARRINGTON.†

The processes of bleaching, dyeing and finishing of cotton fabrics containing rayon are not dissimilar to the processes employed in the bleaching, dyeing and finishing of all cotton fabrics. Therefore, if one expects to hear with this paper a technical discussion of bleaching and finishing, I am afraid he will be disappointed. As a commission finisher, my thoughts naturally run along the line embracing the converter, the grey mill and the finishing plant. Even though that is the case, anything I might say would be equally applicable to a concern which does its own designing, manufacturing and finishing. In the latter case this concern would have all of the problems encountered, instead of those encountered by each one of these three groups.

The phenomenal development of artificial silk, or as it is now called "rayon," in the last few years, makes it almost impossible to treat a subject of this kind in a broad way because of the vast multitude of fabrics and combination fabrics made wholly or partially of rayon. Different patterns or different fabrics might take slightly different treatments, due to the nature of the fabric and to the use to which the particular fabric will be put. I believe, however, a cotton shirting or underwear fabric containing rayon stripes will be sufficiently representative to enable us to derive some good from a discussion of the bleaching, dyeing and finishing of this particular fabric.

In this day and time it is becoming more and more necessary for each person in the chain of distribution to understand more thoroughly the problems that others in the same chain encounter, especially is this true in the handling of cotton fabrics containing rayon. There is a decided responsibility on the part of the converter, the grey mill and the finishing plant, and the proportionate part of this responsibility must be fully and cheerfully shouldered by each one if the best finished results are to be secured. It is my opinion that in the production of the proper finished article the responsibility on goods containing rayon lies about one-eighth with the converter, three-eighths with the grey mill and one-half with the finishing plant. It seems to me that that is about the way it lines up today, which means that the manufacturer of the rayon itself is entirely left out of the problem. I am not sufficiently familiar with the operations in the rayon manufacturing plant to state what his responsibility should be, but certainly it is reasonable to suppose that he has troubles and bad work of one kind or another, due to temperatures getting too high or too low, or to acid baths getting too strong or too weak, or in other ways which would cause his product possibly to look all right, but to have certain defects which would not show up until the goods were subjected to chemicals used in the process of bleaching. As that, however, is a responsibility which cannot be definitely fixed at this time, certainly not by us, we must leave that feature entirely out of our consideration, and think only of the converter, grey mill and finisher.

A person may ask, in what way does the converter enter the problem? Briefly, in this way: His one idea naturally is to produce an attractive fabric that will sell. He is rather prone to think little of what troubles the grey mill will have in weaving or of the finishing plant in finishing, but those things should be carefully considered in the designing of the fabric. If the floats in the rayon stripes are too long or not properly tied down it is quite probable that when tension, even though only a small amount of tension, is put on the fabric in finishing, the rayon stripe is more than apt to break. The grey mill should endeavor to use its influence with the converter with a view to having him consider this matter carefully in the designing of his fabric because the mill is almost as much interested as the finishing plant in producing good finished results.

Most of us are familiar with the one big problem of the mill in the weaving of goods containing rayon. That problem is the one of tension between the cotton yarns and the rayon yarns. This matter of tension has probably been responsible for more trouble in finishing than any other one thing. This is due to the fact that in finishing, the cotton yarns will stretch while the rayon yarns have practically no resiliency.

One of the most important things for the finisher who handles rayon striped goods to do is to give these goods the proper grey inspection before the finishing is started. This may save him a great deal of trouble later on. It is hardly possible, at least it is not practical, for a finisher to inspect every single piece of grey goods but he can inspect a sufficient number of pieces to satisfy himself that the lot as a whole runs satisfactorily. Of course we all realize that every loom is a separate unit and it does not by any means follow that because some pieces from a certain mill are satisfactory all pieces are satisfactory, nor does it mean that because in some pieces the rayon is too tight that all goods from that mill are too tight. It is reasonable to suppose, however, if a sufficient number of pieces are examined and found to be all right, that the lot as a whole will be satisfactory.

Simple methods for this inspection should answer the purpose. One is to look at the creases where the yarding machine blade has folded the piece, and see if a saw-tooth effect is noticeable. By that I mean that if the silk is too tight the silk threads will be drawn in on these creases, giving this so-called saw-tooth effect. Another simple and possibly better way is to run one's fingers into the fold and pull them towards the selvage. If the rayon is tight a decided cord effect will be noticed when the fingers pass over the rayon stripe. Another way is to take a small section of cloth, say six inches in length, cut the threads so as to remove carefully one of the rayon threads, then do the same thing with a cotton thread and see what difference, if

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any, develops in the lengths of the two threads. A difference of five per cent is usually not considered excessive. If the goods are found to contain tight rayon they should be held out of process and the customer notified.

This question of tight rayon is one that should have very close cooperation between the mill and the finisher. In recently handling with a grey mill the question of certain pieces of goods in a lot containing tight rayon, the mill man stated to me that he knew the goods contained tight rayon and that they had been put aside by him and invoiced to his customer as seconds. He seemed to think that by so invoicing the goods he had assumed all the responsibility to which he was entitled. The average person would also probably agree with him. The fact remains, however, that when seconds are invoiced to a finishing plant, the finisher assumes that there are probably weaving imperfections, oil spots, or things of that kind that have necessitated the classing of the goods as seconds. In this particular case the goods were not invoiced to us as seconds, but even if they had been we would have assumed one of the defects just mentioned. If goods contain tight rayon the mere classing of these goods as seconds does not make it any easier for the finisher to prevent the breaking of the rayon. It is my opinion that such goods should not be classed as seconds, but should be classed as containing tight rayon and so invoiced to the finishing plant. If the finisher then wants to assume the responsibility after inspecting the goods, he of course is at liberty to do so. If he does not care to assume such responsibility, he can so notify his customer and the customer can then assume that responsibility if he feels so inclined. In any event the finisher is informed that the goods do contain tight rayon and can therefore be particularly careful in their handling.

The bleaching of goods containing rayon, as stated, is quite similar to the bleaching of all cotton goods. There are two main considerations for the finisher to keep constantly in mind in the finishing of rayon striped goods, and they are first of all to do nothing that will have a tendency to break the rayon. When rayon is broken by the finisher it is usually done in the bleaching process and therefore while the goods are in the rope form. You are doubtless familiar with the fact that rayon, when wet, has practically no tensile strength, and therefore care in handling, while the goods are wet, cannot be too strongly emphasized. The other big problem for the finisher is to put nothing in the goods when starching or finishing that will effect the luster of the rayon. The rayon stripe is put in because of its luster to beautify the fabric, and if, therefore, anything is done to the goods to deaden the luster of the rayon, the finisher has fallen down in producing one of the main results desired in finishing the goods. If, therefore, these two main points are kept constantly in mind during the bleaching and finishing processes, very little trouble need be expected.

The goods are first sewed together into continuous lengths, and sometimes put over a singer for a light singeing. If it can be avoided, it is better not to singe the goods because it is very easy to damage rayon stripes by having them come in contact with a hot flame. After singeing, the goods should be treated with diastafor for the purpose of removing the starch. If the goods contain no color, that is, either colored cotton threads or colored silk threads, they can be run into a kier for a regular boil. Some plants prefer not to boil even all white fabrics, but a great many plants do give them a regular pressure boil, after which they are pulled out of the kier, washed, given a chlorine treatment and allowed to stand long enough for the bleaching to be completed. Then again washed, given an anti-chlor treatment, washed again and piled in the white bins ready for finishing. It is during these various washings, while being bleached, that extreme care must be taken to minimize the amount of tension put on the goods. It is preferable to use a slack washer, but as all plants are not equipped with slack washers the ones which are not get very good results without them if proper care is taken to minimize the tension. After bleaching, the goods are pulled out and opened up on a scutcher, and usually lightly mangled. A heavy mangling is very dangerous because at this point the goods are still wet and therefore in a condition to make extremely easy the breaking of the rayon threads. On some goods it is desirable not to mangle them at all, especially where the rayon passes over cords; and on still others it is sometimes found more desirable not even to put them over a scutcher, but to open them up by hand, which is naturally an extremely slow process, but even at that, better than damaging the cloth.

Goods containing colored cotton threads or colored silk threads must be bleached in a slightly different way from all white goods. They cannot be boiled as goods are that contain no color. Of course if a peroxide bleach is employed, the entire bleaching process, whether the goods contain color or not, is conducted in the kier, but my remarks are concerned chiefly with the chlorine bleach. Goods containing color are usually scoured in an open soaper in lieu of boiling and then bleached as outlined above for all white fabrics. It is sometimes necessary to treat more than once with chlorine, goods containing colored yarn, this being made necessary because they have not been boiled and therefore have not had well removed the moats and other foreign substances. It is sometimes found necessary on goods containing blue stripes to develop them with hydrosulphite after being bleached in order to restore their original color. I have noticed a difference in the amount of luster developing in goods containing colored silk yarns. A gold shade is always very brilliant. A helio shade less brilliant, and a blue shade having less luster than any. This is doubtless due to the fact that the gold color, next to the white reflects the light better than the other colors, and the blue reflecting it worse than any others.

From this point the problem becomes one of finishing, so after the mangling mentioned, the goods are dried and are then ready either for dyeing or for finishing. There is nothing special to be said about the dyeing of these fabrics because they are practically always dyed into light or medium shades which can be produced on a padder in the same manner as all cotton fabrics. In the finishing of them, however, in fact of any fabric containing rayon, the second big feature for the finisher to remember, namely that of preserving the luster of the silk should be especially kept in mind. Large quantities of starch and oil should not be used. It is desirable in starching to use as nearly as possible starching materials with transparent qualities, such as gums and waxes of various kinds. Starches have a tendency to coat over the silk stripe and to prevent the reflection of light, while gums and waxes having transparent qualities, do not to any appreciable extent effect the luster of the silk. Fabrics of this kind are usually finished into

soft or semi-soft finishes, so that large quantities of starch are not necessary. After starching, the goods are dried, or partially dried and stretched to the desired width on the tenter frame, at which time the drying can be completed. The calendering or finishing, and the put-up and packing is then done depending upon the particular requirements of the customer.

A paper of this kind would not be complete without briefly mentioning the possibilities of celanese. Some wonderful cross dyeing effects have been secured with this new form of silk, and in this age of violent style fluctuations and the demand for anything new or novel, there seem to be wonderful possibilities in this field. There has been very little development in the bleaching, dyeing and finishing of fabrics containing celanese in the South. There is no reason why it cannot be satisfactorily done and the time should not be far distant when there should be more goods of this type manufactured in the South, which should also be bleached, dyed and finished in the South. More and more of the cotton mills are experimenting with its manufacture, and if it enjoys the popularity that I believe is ahead of it, it will not be long before southern finishing plants will be well fixed to handle it.

There are a few important things to keep in mind in the bleaching of goods containing celanese, one being that it will not stand high temperatures and therefore cannot be boiled in a kier. The temperature should not exceed 180 degrees in the bleaching, dyeing or finishing if the luster of the silk is to be preserved. Also the chlorine bath which can be used in bleaching it should be kept as nearly neutral as possible. The dyeing is handled in very much the same mechanical manner as the dyeing of all cotton, or other artificial silk striped fabrics. Special dyes must be used, such dyes being made by the manufacturers of the celanese silk as well as other dyestuff manufacturers. Cotton has no affinity for these dyes and the celanese has practically no affinity for regular types of cotton dyes. Therefore the two types of dyes can be made up in the same bath and upon passing the goods through this mixture get the desired results on both silk and cotton.

There are many forms of both manufacturing and finishing now being done in the South, including large quantities of fabrics containing rayon, which for one reason or another it was thought for a long time could not be successfully handled in the South, but which feeling has now long since disappeared. We who are gathered here are all interested in the same or similar lines. The spirit of cooperation and mutual helpfulness which southern mills have shown toward each other for a great many years has been largely responsible for the position the South now holds in the textile field, and only by a continuance of that policy and by meetings of this kind where we all come together for the purpose of learning something new or of improving our present methods can we hope to make in the South the progress that we should.

Southern Textile Association Meeting at Columbus a Huge Success

The Columbus, Georgia, meeting of the Southern Textile Association, held on Friday and Saturday, October 16th and 17th, made itself an epoch in the history of the organization for several reasons. First was the laying of the foundation, by President Grimes and Secretary Cobb, for an extension of its activities and a broadening of the scope of its work. This was developed particularly in the report of Mr. Cobb, which outlined the steps already taken and in prospect toward securing recognition of the Association as a vital factor in connection with textile standardization and specification work. The Association unanimously approved Mr. Cobb's actions thus far, and pledged its support and cooperation in the future by authorizing him to continue his efforts along this direction.

Another feature placed officially before the Association for the first time, was the matter of reorganizing the discussion committee work, and from the ideas suggested at Columbus, it is certain that some definitely fruitful steps will be taken to improve the value of this most important division of the organization to the individual members.

Columbus justified the advance prediction that entertainment worthy of the occasion would be supplied, and everyone attending was eager to testify to the genuineness of the hospitality accorded by the hostess city. A record-breaking attendance had not been anticipated, but even so, the number present was gratifyingly large, especially for the first day of the meeting; a good representation coming from the Carolinas as well as from Alabama and Georgia. The meeting drew at least one man from so far a location as Texas.

The report of Secretary Cobb, which he made rather as general chairman of the sectional committee work; an address by W. M. McLaurine; and some interesting practical discussion, were the high lights of the meeting, which will be taken up in seriatim order in the following account of the proceedings.

The Friday morning session was brought to order in the auditorium of the Columbus Electric & Power Company by President Oscar D. Grimes, of Athens, Ga. Rev. Robert M. Stimpson, of Columbus, was called upon for the invocation, following which Hon. J. Homer Dimon, mayor of Columbus, welcomed the visitors with an interesting talk. He afterward presented Brigadier General Briant H. Wells, commandant of Fort Benning, which is near Columbus, who especially invited the delegates to the rolling kitchen luncheon and infantry arms demonstration at the Fort on Friday afternoon. Arthur B. Carter, of Gastonia, N. C., responded on behalf of the visitors.

After Mr. Carter's remarks, President Grimes read a letter from George S. Harris, of Atlanta, president of the Cotton Manufacturers' Association of Georgia, extending greetings from his association and expressing regret at his inability to attend the Columbus meeting.

Report of Secretary Cobb.

The president next called upon F. Gordon Cobb, general manager, Lancaster Cotton Mills, Lancaster, S. C., who was elected secretary-treasurer of the Association at the Asheville meeting in June of this year. Since the background for Mr. Cobb's report was given briefly in his remarks, they are reproduced herewith practically in full.

"Since some of the items I wish to mention at this time are entirely unrelated, I could not hope to carry a

continuous line of thought through my report, and therefore I will present them to you in numerical order," he said.

"Ever since our June meeting, I have done considerable work to get the Southern Textile Association recognized by the American Engineering Standards Committee, and I have been partially successful, as I will explain, but before explaining about this, I wish to give you a brief outline of the work preceding, and its object.

"Several years ago, in 1916 to be exact, we started out with this idea: that if it would be practicable for you to call into your office fifty of the most expert carders in the South, and fifty of the superintendents of the most successful mills in the South, and ask that body of one hundred men any particular question about carding, say, for example, what from experience they had found to be the best speed for a beater on a finisher picker, or the beats per inch for American inch cotton to produce the strongest, most even number 30s yarn, and suppose that 75 out of the hundred men would give you practically the same answer, then wouldn't you think you were getting some pretty good information? If your mill was not in line with what they had told you, wouldn't you begin to look into it and see if you weren't wrong?

"With this idea in view, we started a questionnaire system, with the idea of compiling information in this manner, and giving it to the members of the Southern Textile Association at the semi-annual meetings. Out of this system grew the sectional meetings, the first of which was held in Charlotte in December, 1920, under Mr. Boyd's presidency. We have done considerable work in the sectional meetings. The mills all over the South have been benefited by that work. It does seem as if we have covered a very wide range of subjects. We have discussed practically every mill problem, and it does seem that now is the time to get down to brass tacks, so to speak, and get definite information which can have the approval of the Southern Textile Association as being practically a standard until we find something better. What few standards we have, you all know, have been set up by the machinery builders and textile schools and other sources. You know whether your mill is complying with these standards. If the majority of the mills in the South are not complying with these standards, surely there must be something wrong—either the standards are wrong, or the majority of the mills are wrong.

"We are laying plans for the practical man to have something to say about setting up these standards. All big business realizes that standards are, today, the most important step toward industrial efficiency. In making a search for information along this line, I received the shock of my life when I began to learn of the vast amount of work that has been done in practically every big business in the whole country except textiles. The American Engineering Standards Committee consists of nine national engineering societies, seven departments of our own government, and nineteen national associations, which cover practically every industry in the world—except textiles. I would just like to give you an idea of the scope which it covers; for example, the national coal associations, the motor accessories manufacturers, the motor truck associations, the piping and heating contractors, federal ship building companies, electric light and power companies, brick manufacturers' associations, bell telephone companies, supply and machinery manufacturers (that's getting pretty close to us)—and so on, practically every industry in the whole country—except textiles.

"Can't you see that if we do not get interested in this business, somebody is going to do it for us. Don't you realize also that it will be to the best interest of the mills from the financial standpoint if the practical man has something to say about setting up the standards for their products? Let me illustrate—I do not ask you to believe the statement I am going to make unless I might demonstrate it—but I can go into your mill, and set your folders to fold 36 inches every stroke, fold 100 yards of cloth, lay that cloth on the floor, without any stretching, put a steel tape on it, and in some instances it will measure more than 100 yards with the folder folding exactly 36 inches, every stroke. Then a yard is not a yard in some instances. I could probably cite instances of where sixteen ounces do not make a pound.

"These are some of the things we must get to the bottom of; these are the things we need more light on, so to speak. When a commission house receives a complaint on an order of goods you send them, they write to the president of the mill, the president has the superintendent up and explains to him that the mill is going broke, the superintendent goes into the mill, and gets the cloth room man and boss weaver and repeats everything that the commission house and the president have said, and every time it is told the darn thing gets bigger and bigger. A couple of overseers see their jobs hanging by a string and, until that scare wears off, for the next few months that mill will probably put enough first-class cloth into seconds to have given the customer the whole shipment and paid the freight besides. Gentlemen, the standardization of allowances for seconds will cut out such things as that. Yes, I heard you when you thought it: 'That's a pretty big job.' But you buy cotton on a standard, don't you? If standards can be set up for such small differences as a slight variation in color of cotton, that the buyer and seller can agree on—because there is a standard—then does it seem a great big job to set up a standard for allowances for seconds, scratch-ups, thin places, threads out, which are common to all mills making any particular style of goods!

"We must get into this standardization business before somebody does it for us. It is appalling to realize the millions of dollars invested in textiles, when the products are sold in such a hap-hazard way.

"The next item I wish to mention is not intended as a recommendation to the Association; it is merely given you as food for thought, based on the experience I have had with the Association. First, I do not believe that our president holds office long enough. Our president comes in at one meeting, prepares an annual address, and goes out at the next meeting. If he had any constructive ideas he hasn't had time to put them into action.

"Next, gentlemen, about the time of our Alabama meeting, and about the time of the organization of the Textile Operating Executives of Georgia, I made the suggestion to get our sectional committee work divided up into zones or states. I believed, for example, that North Carolina is more interested in fine spinning than Georgia, and that probably South Carolina is more interested in print cloth and dobby weaving than North Carolina is, and that is the reason why we continue to have the semi-annual meetings; we move from place to place with the semi-annual meetings in order to allow the people from various sections of the South to

attend. Wouldn't we, therefore, get more concerted action if we had the sectional meetings divided up into zones or states where the men working with common things could discuss these more in detail, and then have the chairmen report to the semi-annual meetings. Please understand that the Association must always remain the parent Association. We could never get the combined support of the mill presidents and treasurers if we had a number of separate state associations only, and, gentlemen, we have plans in view in which we will need the combined support of the mill heads, and the Southern Textile Association is the only association that can get that support."

Here Mr. Cobb paused long enough to read extracts

Oscar D. Grimes, President.

from letters received from mill officials which were in endorsement of the Association work, and which he presented to indicate the interest manifested by the mill heads in the Association, and their apparent willingness to cooperate in further extending its usefulness.

"Next is the idea of a section of master mechanics," resumed Mr. Cobb. "We let that kind of die out, but undoubtedly some of you remember the very able work of the late Mr. Rhea in this connection. We want to get that section started again. We want to know what supplies it pays a mill to repair in the shop. We want to know whether it pays to have two men in your shop, or twenty men. Do you know now? The item of supplies on our cost sheets is mounting higher and higher and higher, and it looks like it cannot be stopped. A few years ago a half a cent a pound for this cost was considered an average and recently it has gone up 300 to 500 per cent. We certainly need somebody to tell us something about it. I shall consider it a personal favor if you will write me giving me the name of any master mechanic who would be able to hold the place as chairman of such a committee.

"The next item is that of a section for finishers. I made an effort in this direction several years ago when I tried to get Mr. Arrington, superintendent of the Union Bleachery in Greenville, to organize something of this kind."

Reverting back to the matter of specifications and standards for cotton goods, in emphasizing the part that the practical man should play in establishing these standards, and the possibilities which lie in that direction, Mr. Cobb read a letter from the secretary of the American Engineering Standards Committee which stated that while there has been comparatively little done so far as the practical man is concerned, standards have been established from the standpoint of the consumer and buyer, and that there is no reason why they should control the program of standards in this field, and that there should be a tremendous saving to the producer to become interested in this work. As indicative of the reception which has been given the Association, Mr. Cobb pointed out that in the last list of addresses to which certain proposed federal standards for textile materials were submitted for criticism, the name of the Southern Textile Association was second, the first being the National Association of Finishers of Cotton Fabrics. Mr. Cobb stated that he had been invited to attend the recent meeting of Committee D-13 of the American Society for Testing Materials, in Greenville, but did not do so because he had not had an opportunity to receive the authority of the Association to act along this line. Should this be granted, he stated, he would be glad to carry the work forward

F. Gordon Cobb, Secretary-Treasurer.

and do whatever he could.

In concluding his remarks, Mr. Cobb said that "Mr. Grimes and I are going to put forth every effort in our power to make the Southern Textile Association bigger and bigger, and I only wish that I had some way to get under the skin of every individual here today, to get you to realize the wonderful opportunities that you are missing by not joining actively and personally into the work of the

Association. You know, you can have a number of expert section men to tell you about fixing looms, you can have a number of overseers to tell you how to oversee a room, but you will not be much of a fixer or an overseer until you get in there and do some of that fixing or overseeing yourself. There never was a time in the history of the world when it was so true that knowledge is power. If you will only take my word for it and enter into the work of the Association with all your heart, go to every sectional meeting that you can attend, talk until the chairman calls you down, ask all the fool questions you can think of, you will find out things about your own job that you never dreamed of, it will broaden you out more than anything I know of, and, incidentally, you will be a bigger overseer or superintendent than your boss every thought you'd be."

Hearty unanimous approval was given Mr. Cobb's actions so far, with reference to the American Engineering Standards Committee, and he was instructed and empowered with authority to cooperate and work with this and similar organizations further according to his judgment and ideas, and to report progress to the Association from time to time. At the suggestion of David Clark, of Charlotte, Harry H. Boyd, former president of the Association, but now retired from active mill work, was named as assistant to Mr. Cobb in the standardization work, because of the intense interest he manifested in this subject during his connection with the Association.

This was the only feature of Mr. Cobb's report receiving official action. The matter of re-dividing the discussion section or division work was taken up and discussed, but held for consideration until the annual meeting in the Summer of 1926. One interesting point brought out in the discussion on this topic was the possibility of re-organizing the work according to the product manufactured, rather than in agreement with geographical or state lines; in other words, instead of having a North Carolina section, a South Carolina section, a Georgia section, etc., to form sections devoted to fine yarns, print cloth weaving, duck weaving, fancy weaving, etc.

After some announcements by Paul K. McKenney, president of the Columbus Textile Association, and others, regarding the entertainment, Colyar S. Tatum, superintendent of the Consolidated Textile Corporation, Bonham, Texas, who probably came further than any mill man to attend the meeting, was called upon, and brought grettings from Texas to the members, expressing his interest in the work being promulgated by the Association. Mr. Tatum, who was the official representative of the Texas Textile Association to the Columbus meeting, referred to the recent meeting of that Association at Denison, stating that those interested would find a complete account of the discussion held there in the November number of COTTON.

The Angle of Spinning Frame Rolls.

The next feature of the program was a period of practical discussion, the first subject taken up being spinning. This discussion, in the absence of Chairman Carl R. Harris, was led by Past-President James A. Chapman, Jr., of Inman, S. C. In opening the discussion, Mr. Chapman stated that coming down from Atlanta he had learned of a Georgia mill which has been able to increase the front roll speed on 25s warp from 135 to 152 turns by changing the angle of the roll stands on spinning frames, and called upon W. L. Phillips, superintendent, Social Circle Cotton Mill Company, Social Circle, Ga., to give his experience in this connection.

"I have some old Lowell spinning that was equipped with the 25-degree stands," responded Mr. Phillips, "and 135 was as much as I could get out of the front roll. I also had 12 Lowell frames that came out later, and which were equipped with the 35-degree stands, and I could run these frames at 150, with the same spindle, same ring, same traveler, and everything. The only difference was in the stand, and so I made up my mind that the difference in stands was the cause of it, so I bought some 35-degree stands for the older frames, and immediately speeded them up the same as the others, and they ran just as good. There was one thing I ran into: the frames that I changed were too low. The spinners were always complaining about having to stoop over to get up the end. I made a trip through one of the mills in Augusta, and saw they had the frames raised up three or four inches from the floor. When I got home I jacked mine up and put blocks under them, and that eliminated the stooping over to get up the ends, so I immediately equipped the entire room with the 35-degree stands and raised the frames four inches from the floor.

"Later I installed fifteen frames, and I wanted these frames built higher from the floor, and with the 35-degree stand. The Saco-Lowell people didn't want to do it at first, and it took me three months to get the order through. I put these frames up and started them up at 152 r.p.m. on 25s, and they are running that way today.

"I believe a 40-degree stand would be even better."

"What was the theory that induced you to make the change?" asked Mr. Chapman.

"It makes the distance shorter from the bite of the roll to the thread guide," explained Mr. Phillips. "Then there is less drag on the front steel roll. It is almost a straight level from the back of the steel roll to the guide wire on the 35-degree stand, and my theory is that a 45-degree stand would make it level."

"That is just on filling?" asked Mr. Chapman.

"On both warp and filling," replied Mr. Phillips.

"What was your end breakage per hundred spindles before and afterward?" asked P. A. Smith, superintendent, Pacific Mills, Lyman, S. C.

"I didn't check up on it that closely," said Mr. Phillips, "but my spinning looks better at the higher speed. My spinners run six to ten sides, 208 spindles to the frame."

In other words, Mr. Chapman brought out, "the conditions are just the same as before, except that you get a greater production per operative. I think this is interesting, and I am going back and buy some stands to try it out on at least one frame, anyhow."

"I can give you some idea as to the cost," suggested Mr. Phillips. "It costs about $104 per frame; you have to change the gears and scavenger roll weights, and lap sticks, etc."

"But for an increase of 20 turns on the front roll, that isn't so expensive," commented Mr. Chapman.

The next question taken up was, "Is there any advantage to be derived from the combination warp and filling wind for straight filling wind for warp spinning?"

J. S. GAMMON, overseer of spinning at Exposition Cotton Mills, stated that he has been running the combination build on six frames, day and night, for a period, and that he finds he can get more yarn on the bobbin.

"What do the spinners say about it?"

"The spinners like it," said Mr. Gammon, "but lots of times when you make a change they'll say it is better regardless, and you must try it out for a time to see."

"Yes, and sometimes they'll say a thing is bad regardless," commented Mr. Chapman.

"What is this combination build, anyhow?" asked Mr. Brown.

"You use a filling build with the regular warp cam," explained A. S. Griffith, Manchester (Ga.) Cotton Mills.

"How long a stroke?" inquired Mr. Brown.

"You lengthen the stroke, but as to how much depends upon the size of the ring," replied Mr. Griffith. "You want it so that when the ring fills up the bobbin will be full."

"As I understand it," added Mr. Chapman, "the stroke is really the length of the bobbin with the taper taken off. How about the spooling, Mr. Griffith? That's where we ran into trouble."

"We have no difficulty there," responded Mr. Griffith.

Mr. Cobb here explained that this differed from the regular filling or warp wind in that a filling let-off and warp cam are used.

"What advantages do you claim for it?" Mr. Griffith was asked by W. A. Black, superintendent, Beaumont Manufacturing Company, Spartanburg, S. C.

"On the filling wind, all spinners know that you cannot fill the ring full exactly, because atmospheric conditions and other things will enter in there, but with this combination wind you can run the frame until the ring is full," said Mr. Griffith.

Mr. Chapman brought in the point that probably with this build, the yarn could be used on the Barber-Colman high-speed spooler, since the makers claim that filling wind cannot be used on this machine.

"On this combination wind," said President Grimes, "where you use the filling let-off, it allows the ring rail to go to the top. On the warp wind it shortens the stroke every time it makes a stroke; therefore you have a taper on the bottom and top. On filling wind you have a short stroke that begins at the bottom and works back. On the combination wind you begin and work up to the top and then up and down."

Mr. Griffith declared that the biggest advantage he had derived from the combination build was in the spooling, since he had been able to increase the speed from 800 to 1,200 at this point, adding that it spools better. The increase in speed on the spoolers was made in changing from the regular warp wind in spinning, he said in response to a question.

Mr. Connelly asked if Mr. Griffith used the warp bobbin for the combination build. He stated that he had tried the combination wind and had fifteen minutes less on the doff as compared with the regular warp wind.

"I use a warp bobbin," replied Mr. Griffith. "You cannot use the filling type bobbin because it will fill up too big at the bobbin. In changing to the combination wind, we decreased the diameter of our bobbins 1/16th inch."

H. A. Lehmuth reported an experience similar to that of Mr. Connelly's with regard to a short doff, and added that while the ends did seem to run better than the warp wind, he had difficulty in spooling.

"Could that be spooled in a regular shuttle spooler?" asked G. R. Brook, superintendent, Mary-Leila Cotton Mills, Greensboro, Ga. "No, sir, it could not," replied Mr. Griffith.

"I looked into that a little bit a few years ago," declared Mr. Smith, of Lyman. "You know, first someone whom I do not have to name came along and told us the only thing to do was to go onto filling wind, and now somebody else says for us to go back half-way. I can't reconcile that. My experience does not prove it out. It all depends on what you start with. You know if a man tells you he was running his automobile ten miles an hour and increased it one hundred per cent, that would be reasonable, but if he told you he was running it forty miles an hour and increased it one hundred per cent, that wouldn't be reasonable.

"In my experience, the amount of yarn you get on a bobbin is governed largely by about two or three factors: are you getting all the length of stroke that the bobbin will take; do you fill your ring up; and does the traverse run too fast or too slow? By running the traverse slow and correctly, I can get as much yarn on with the warp wind." He told of an instance where a mill on filling wind had sent him a sample bobbin, and that with the same conditions, except that he used warp wind, he had got two ounces more yarn on the bobbin than his friend.

Mr. Clark brought out that probably everyone agreed that the short traverse gives better running spinning, but that the difficulty was in the frequent doffing. "Now with the combination build you get a short traverse and are allowed to put more yarn on the bobbin."

In explaining his remarks, Mr. Smith stated that insofar as better running spinning is concerned, he favors the filling wind, "but you cannot get any more yarn on the bobbin with the same conditions."

W. A. Black, of Spartanburg, was called upon and stated that while he had given the filling wind a trial, and had experimented with practically every tension device for spooling that he could find, he had failed to convince himself that it was any benefit to spend the money necessary to make the change, and that he is still on the old-style warp wind.

Mr. Phillips stated that he has used filling wind for warp for ten years. "I use a body forming attachment which gives me a chance to use a straight bobbin," he said, "and I put yarn on the bottom of the bobbin instead of using a wooden cone down there, and I get more yarn on, and my spinning runs better and faster."

"What circle traveler gives the best results on 30s warp, No. 1 flange?" was the next question asked by Mr. Chapman. Mr. Black said he didn't remember exactly, but believed he uses a 9 circle.

"I have always run the ¾ circle, and that gives me best results," responded Mr. Smith.

"Ever try the ⅝?" asked Mr. Chapman.

"Yes, but the biggest objection to it is that it is very hard to put on," replied Mr. Smith, "and I would not say that it runs any better than, or as good as, the ¾."

"Is there any advantage to be derived from ball bearing top rolls on spinning?" Mr. Chapman asked next, but there was no discussion on this.

Mr. Chapman next brought up the idea of electric stop motions on beam warpers. "A man was around to see me the other day trying to sell me some electric stop motions for looms, and I suggested that he make me one for a warper. I just wanted to see if there was anyone else who had tried it." No one discussed this subject either.

The final spinning question was from T. E. Raht, superintendent, Swift Spinning Mills, Columbus, Ga., who wanted to know if anyone knew of a quill cleaning or bobbin

cleaning machine which would clean a warp bobbin which is 1/16 inch smaller at the base than at the top, in other words, one with a reverse taper, but no one replied.

L. L. Brown, of Clifton, S. C., chairman of the weaving division, next took the floor. Before beginning the weaving discussion, Mr. Brown made several statements concerning features of Secretary Cobb's report. In the first place, he declared that the members should consider themselves extremely fortunate in having such a capable man as Mr. Cobb in that position.

As to Mr. Cobb's remarks concerning folders not measuring evenly, Mr. Brown said Mr. Cobb had pulled that on him, and that on the face of it he didn't believe it. But, "because of his faith in Gordon Cobb," he went home and after some tests found it to be true. With reference to standardization of tolerances, he said that, "when it comes to a matter of seconds, we do not know what constitutes a 'second.' You can take two clothroom men and let them pass on the same piece of cloth and they will disagree. How will we arrive at what does constitute a piece of seconds on print cloths, for example? I was thinking the other night that we might have a meeting with a display of cloth, have a half a dozen mills send in a piece of goods on the verge between second and firsts according to their classification, and see how many of those at the meeting would put it in firsts and how many in seconds. If the majority of men say this is a first-class piece of cloth, then let's see how many defects there are in this cloth, and of what nature, and that should be a step toward standardizing the allowance or tolerance of those defects." Admitting the difficulty in having every man examine each piece of cloth personally, Mr. Brown suggested the possibility of having moving pictures of each fabric made and thrown on the screen at the meeting, with an explanation of each piece and each defect.

In taking up the weaving discussion proper, Mr. Brown stated that he had attended the September meeting of the Textile Operating Executives of Georgia, and would rather follow the lines of the questionnaire discussed at that meeting. The first question was, "For what fabrics are steel harness best suited as compared with twine harness?" Mr. Brown stated that, "at the meeting in Atlanta there wasn't so much discussion on that because very few of them had used steel harness, but the idea was that it was best on 20s and under, but some of the Carolina mills have been using it on print cloths for a number of years." He called upon D. W. League, overseer weaving, F. W. Poe Manufacturing Company, Greenville, S. C. Mr. League reported favorable results with steel harness on tobacco cloths and fancies, declaring that he had not tried it much on sheetings.

W. A. Black was next asked to give his experience. "On our print cloths, 68x72, we used cotton harness for years," he said, "but we found that the life of the cotton harness was so short that we changed to the German heddle and find it very satisfactory and are now running our print cloths with the German heddle.

"On 110x64, 18s yarn, we are using the duplex steel heddle. On the four-leaf twill we use the flat steel heddle. It is about the only thing with which we can make the high-count goods satisfactorily." He said his weavers run 12 to 14 looms.

It was necessary to bring the discussion to a close at this point, due to the lack of time, but Chairman Brown brought out other questions which he wanted to place before the members for thought and consideration between now and the next weaving discussion meeting. Among these were the following: "Are battery hands a good thing?" and "What is the greatest cause or causes of automatic looms stopping?"

Before the session was closed, Mr. Cobb urged upon the superintendent and overseers the importance of their discussing the plans and work of the Association with the presidents and treasurers of their individual mills. He mentioned the plans on foot for the Textile Foundation, which will require the support of the financial executives and urged the operating men to begin to stress its importance at their own offices. This concluded the morning session.

Visit to Fort Benning.

An entertainment feature which probably has not been excelled for interest and novelty was furnished by the Columbus committee for Friday noon and afternoon. At the conclusion of the morning session, the visitors were conveyed to Fort Benning, the largest infantry training school in the world, which is six miles from Columbus. Here the conventioners were delighted with the serving, in army style, of a "rolling kitchen" luncheon. And this observer—and participant—is here to state that this feature made a decided hit with the folks. We didn't notice Runge nor any of the other textile representatives of the A. E. F. holding back on the army chow, to say nothing of the rest of us to whom it was a new experience.

After the luncheon, the delegates witnessed an impressive and instructive infantry and auxiliary arms demonstration, which included the demonstration of tanks, machine guns, trench mortars, rifle squads, etc.

The visitors were intensely interested in the entire demonstration, which provided an opportunity of exhibiting to the Association members what is being done at Fort Benning in the way of national defense. The demonstration was in charge of Major F. E. Uhl, M.P. & T. officer of the infantry school, with Captain C. A. Pritchett as assistant. Captain Walter Dumas acted as announcer. The first exhibit consisted of two tanks, one large and one small, the latter demonstrating the crossing of a shell hole. The next exhibit was a gun section, which gave a demonstration of a gun squad in action. Machine guns formed the next demonstration, which consisted of target-shooting and anti-aircraft firing. A three-inch trench mortar and a 37-mm. gun provided the next exhibit. A display of field communications was next explained, consisting of one field radio, one field telephone, one switchboard, one reel cart with wire, and one group of carrier or homing pigeons. A demonstration of smoke-screens and tear gas bombs concluded the program.

The Banquet.

At seven o'clock Friday evening, everybody returned to the auditorium of the power company, which had meantime been transformed into a banquet hall. Here a most palatable meal was served by the ladies of the First Presbyterian Church, with musical accompaniment by an excellent orchestra. Paul K. McKenney acted as toastmaster.

The entertainment features were extraordinarily unique, and, like the entertainment at the Fort, were especially interesting and well received because of their novelty. All of the effort expended by the Columbus committee was thoroughly justified in the program and its reception.

At the conclusion of the meal, the safety squad of the Columbus Electric & Power Company staged a life-saving

demonstration in four acts. The squad was introduced by R. M. Harding, vice-president of the company. The first two acts demonstrated the wrong and right ways of resuscitation following an electric shock; the other two acts showed the correct and incorrect means of first-aid for broken bones and cut arteries sustained from a fall.

The next feature was a monologue by Arthur Emrick, who introduced himself as "the only ham-selling Jew in Georgia." He delighted the banqueters with anecdotes and poems.

Unfortunately, the Columbus committee had asked the Southern Textile Association Orchestra to perform, and just as unfortunately, they had agreed to do so, and in order to get their part out of the way as quickly as possible, they were next introduced. The sole surviving members of their last perpetration, H. E. Runge and Marion T. Grimes, were introduced by Robert W. Philip, who led them through several of their sacrileges upon the name of Music. Luckily for the artists (?), all of the vegetables had been consumed or removed from the tables. The worst-played and worst-received number was "Mamma's Gone to Australia, 'Cause Papa Eats Soda-Crackers in Bed," while, "Peeping through the Knot-Hole in Father's Wooden Leg" ran it a close second as the World's Worst Song.

The concluding feature of the banquet was a "fake" radio speech of the president, which went over in good shape.

Mr. McLaurine's Address.

An address by William M. McLaurine, secretary, Cotton Manufacturers' Association of Georgia, was the feature of the Saturday morning session, which was held in the Civic Room of the Hotel Ralston, with President Oscar D. Grimes in the chair. Mr. McLaurine's subject was

The Trail of the Calf

and he spoke in part as follows:

"Every person who attempts to make a speech or preach a sermon should have a central theme or text. Whether he is able to stay with it and develop it is another matter. It is not fair to the speaker or to the public to fail in this. Hence, in keeping with custom and in order that these remarks may feebly cling around some central core, I read the following lines from the pen of Samuel Foss. He has named this poem 'The Calf Path', but I have changed it to 'The Trail of the Calf.' The poem follows and forms my text:

"'One day, through a primeval wood,
A calf walked home as good calves should,
And left a trail all bent askew,
A crooked trail, as all calves do.

"'Since then two hundred years have fled
And I infer the calf is dead,
But still he left behind his trail,
And thereby hangs my moral tale.

"'The trail was taken up next day
By a lone dog that passed that way;
And then a wise bell-wether sheep
Pursued the trail o'er dale and steep,
And led his flock behind him, too,
As good bell-wethers always do.

"'And from that day, o'er hill and glade,
Through those old woods a path was made,
And many men wound in and out,
And bent and turned and crooked about,
And uttered words of righteous wrath,
Because 'twas such a crooked path.

"'But still they followed—do not laugh—
The first migrations of that calf,
And through this winding woodway stalked
Because he wobbled when he walked.'

"He proceeds to tell us that the path became a lane and that the lane became a road, where many a poor horse toiled on with his load beneath the burning sun and traveled some three miles in one.

"'And men in two centuries and a half
Trod in the footsteps of that calf,
For men are prone to go it blind,
Along the calf-ways of the mind,
And work away from sun to sun
To do as other men have done.'

"This poem by Sam Foss is typical in practically every vocation of life.

"Nations and individuals have followed the trail of the calf.

"China—for thousands of years followed this trail and even went so far as to build a huge wall around its empire in order to prevent any outside nations from destroying its trails. Government, society, education, religions all followed the trail until stagnation and disintegration set in. The wall was torn down, the trails were changed, new ideas came in, and China awoke, lost in the whirl of national development. So great was the shock that even yet she has not found herself, hence she still gropes, hoping some day to make her adjustments and take her place in the great galaxy of nations.

"The renaissance in the fourteenth century was another evidence of nations and people finding that the trail of religion and art and music and government and society was devious, circuitous, blase', incomplete and grooved. People began to wonder if all art and literature and science worth while had been devised or invented or discovered. Someone dared question the religion of the established church, someone dared proclaim a new discovery in science, someone dared paint a new picture and write a new book, and the world went mad to think of the heretics of customs. These leaders declared—"We will not follow the trail longer." Out of that decision came the greatest mental, spiritual and commercial awakening that the world has ever known. The great discoveries date from that century. America was discovered in 1492 and practically all other discoveries date not so far from this. Science, with its blessings to mankind had its initiation there, and later took the mighty and majestic sweep that hands to us today the blessings with which we are surrounded. A great religious awakening came along soon after, and the Protestant Church, with its Martin Luther, John Knox, John Calvin, Charles Wesley and hundreds of others said that we need a new trail, so instead of following we will blaze a trail and make a way for religious progress to travel over.

"America, with all of its spirit of freedom and equality and opportunity owes these blessings to a group of people who looked down the trail of government and religion and oppression, made by the calves of religious and civil potentates and then calmly, yet determined, they said, 'We will not follow the trail any longer.'

"England and France and Holland and other nations spoke to their subjects and said, 'Follow the trail.' These oppressed people, seeking new lives and new opportunities came to America, but these nations sent their representatives to make trails for them. The Continental Congress, the Mecklenburg Declaration, the Declaration of Independence,

were all expressions of a people who had found that there were new roads that could be made over which civilization could travel faster and more comfortably. Hence England received their 'ipse dixit' and the old trail of the calf became useless.

"It may not be out of place here to somewhat modify this seemingly rather revolutionary development, and say that the trail of the calf always led from where the calf was to what it desired, and was necessary for its health and welfare. Just so, in all of these changes that I have indicated, the objects sought for as necessary and desired were not abandoned, but the method of securing them was modified or changed.

"Because of the physiography of our United States, because of the difference in climates, soil, and other physical conditions, because of the difference in types of people who settled in the North and those who settled in the South, it was perfectly natural that the trails of the government and social life should be different. As long as our country was sparsely populated, as long as we were far enough apart to seldom come in contact with each other, each section made and followed its own trail.

"By and by populations increased, transportation improved, commercial life began to reach across this once uninhabited space. Trails began to cross. The government, once a rather loose protectorate, was beginning to tighten up, and people began to wrangle as to whether states or the nation should say how the trails should run. Out of the great conflict of the Civil War came a new nation, with each section endeavoring to make its trails combine harmoniously with the other section so that prosperity and progress in government and religion and education and social customs would pass frictionless from the piney peaks of Maine to the Rio Grande and from Puget Sound to the last Key of Florida.

"But enough of the civic side of life. In old England up to the year 1733 carding and spinning and weaving cloth by hand had been done for long periods of time, but one day, a man—John Kay—looked down the trail and said, 'There is another and better way to do this.'

"There is another way to go, and out of that idea came the evolutionary products of textile machinery. Other men looked down the trail of hand power and horse power and water power, and said, 'There is a better trail,' and out of that came the steam engine, electric and hydro-electric power, with its countless million ergs of ability.

"We think we are living in a progressive age now, with what we call modern mills and modern machinery and modern villages. We pat ourselves complacently, and say we are the path-finders for posterity. We are Daniel Boones blazing the trail through the primeval forest for followers to pursue.

"I sometimes wonder though, if we are not following the trail, and what we are really doing is repairing the road and making it more comfortable over which to travel, and more attractive to the eye.

"I would not disparage this one bit, because this is a necessity, and if it is the only thing that you can do, keep doing it, but don't class yourself as a path-finder, call yourself a 'trail-keeper.'

"If you read 'Wanted—A Prophet' by U. Dodge in the August edition of COTTON, you have a clear idea of what I am now trying to discuss.

"What has been done in the way of new inventions, of simplifying processes, of simplifying machines, of eliminating processes, of increasing quality and quantity, of reducing waste, wear and tear of machinery, and thousands of other problems that the mill men meet every day? I grant you modifications and adjustments have been made, there have been improvements. All of these have embodied the same old fundamental ideas that have come down from the time of the hand loom. Are all of the fundamental and basic ideas discovered? Is there nothing new to discover?

"Medical science improves every year, scientists of all kinds bring out new truths, some even find out that some of our fundamental assumptions have been in error, and new assumptions are made which revolutionize certain procedures.

"To state it again, in terms of my theme. Have all of the trails been made? Is there nothing left for us to do, except keep up the road bed and travel? I do not believe it. If you ask me what new trail to make, I cannot tell you. I am not a practical mill man. If I were a practical mill man, I might not be able to tell you. It takes intense study, and thought and action to give birth to an idea.

"There are signs of restlessness and restlessness is a sign of mental activity, and mental activity is a sign of progress, and progress means new trails.

"Why do I say this?

"There was a time when a cotton mill was a closed corporation in fact. The fence around it then not only meant safety from fire and accident. It meant 'We are perfect within our own selves. We know everything and we don't want anybody to find it out. We don't want any new ideas.'

"The mill was China with her wall around her; she was living in the Twentieth Century A. D., following the trails made by the calf in the Twentieth Century B. C.

"There was a far span between the president and the superintendent and overseers. The superintendent and overseers could know only as little as possible, and this they must not discuss outside of their own mill. How could a man be a real superintendent and have overseers under such conditions? How could any man do otherwise than follow the calf trails of other generations? A new day came. Some of the old boys, who were the descendants of the shut-mouth line, passed away. I respect their ideas and principles, because they were sincere in their beliefs. But a new generation came in, and this new generation brought with them limitless possibilities. They announced—the fence is for protection of property and life, and not a barrier of ideas. Movements travel through cooperation, and we are ready. With this ultimatum announced to the world, some progressive overseers and superintendents of Georgia, North and South Carolina took up the challenge and sent forth a call, saying: 'Boys, come on and let's get together and talk about our problems.'

"Out of that call came the Southern Textile Association, organized in 1908 at Charlotte, N. C.

"Out of these meetings has come the vanguard of textile progress in manufacturing. The cooperation of you people and the free and unreserved discussions that you have, have enabled many a man to go home and change some of his trails.

"Let me warn you, however, that the darkest spot in the civilization of the world was during the Middle Ages. Men in authority agreed that everything worth knowing had

been found out. There was nothing further to know. If you want this condition to obtain in your life, just say that we have arrived. We have our mill and manufacturing processes perfected, we don't want to know any more. We are satisfied.

"Then industrial leprosy will begin to take you apart, joint by joint, until you will finally die on some detention island of oblivion, 'unwept, unhonored and unsung.'

"I would not have made that depressing statement if I had thought that such would ever be your lot. The fact that you are here and have been here so many times before, the fact that you are alive to your opportunities, that you are struggling for new trails, more direct and more rapid to travel over, makes me know that all of textile history worth while has not been written and all of textile progress has not been made, and all of the trails worth while have not been blazed.

"The Cotton Manufacturers' Association of Georgia sends its greetings and best wishes to you, and congratulates itself that you are a part of our great industry."

At the conclusion of Mr. McLaurine's address, the president opened the meeting for the description of new inventions by southern mill men. Under this head the secretary presented a board showing the development of cotton in its different stages, which had been sent in to the president.

This concluded the business, and the convention was adjourned. During the afternoon, many of the delegates witnessed a football game at Fort Benning, while others attended the Tech-Florida game in Atlanta.

Micro-Technique of Textiles*

BY F. J. HOXIE.†

The microscope can be made of great practical value as an auxiliary to many textile operations. The results depend more on psychology than physics. Large photographs made through a microscope can show the dyer and the finisher the penetration of dyes and starches into the fiber and yarn and will show him to what extent such agents as soluble oils and thin boiling starches change the penetration and thereby modify the finish on the goods. In order to carry out this work, a microscopist of moderate skill, making use of microscopic methods adapted to rapid and accurate work, is necessary. This requires neither extraordinarily long training nor excessively expensive apparatus. Experience, of course, improves the results as in other arts.

The Factory Mutual Fire Insurance Companies have been making use of microscopy extensively for several years in connection with studies on dry rot, dust explosions, etc. They have recently been cooperating in this work with the Warwick Mills laboratory. A microscopic department has now been installed in connection with the Mutual Laboratories in Boston.

The manufacturer cannot afford to do much fundamental research work on technological methods, but must devote himself to the practical details of production. For fundamental research such as the development of microscopic methods, he must cooperate with organizations which are not under the necessity of confining themselves closely to details of production, but which can devote their energy to the broad study of general problems. Such an organization can develop methods which have universal application. The use of these methods on specific mill problems such as a dispute as to the cause of stains in goods, defects in dyes or finishing, will be solved by the routine mill laboratory, making use of the methods developed by the research laboratory.

Among the organizations which are fitted to carry on this type of research work are the U. S. Bureau of Standards, the large endowed universities and the Factory Mutual Research Laboratories. The business of the latter is to study problems of interest to manufacturers from the standpoint of preventing fires which originate in manufacturing processes. Such fire prevention and manufacturing efficiency are most intimately connected in most textile problems, for example, the oiling of fibers and the action of oxidizing dyes.

Practical studies into the fundamental principles which underlie manufacturing operations from which fires originate must be made and in this work, most intimate cooperation with the manufacturer is of great benefit to both parties. Such cooperation will in no way involve trade

Fig. 1. Section of Turkey Red dyed cotton cloth, showing the comparatively slight penetration of the dye into the tightly twisted yarn.

secrets or manufacturing methods of commercial value, as valuable trade secrets are dependent upon details rather than fundamentals. In other words, the law of gravitation and Ohms law in themselves have no commercial value, but without them, none of the valuable mechanical or electrical inventions would be possible. The oiling of jute and sisal is of use not only in facilitating manufacture, but in preserving the fiber and when properly done, can doubtless reduce the tendency to spontaneous ignition as indicated by some recent work by Mr. Thompson, of the Factory Mutual Research Department.

There will be no duplication of the work of the routine

*A paper presented before Committee D-13 of the American Society for Testing Materials at Greenville, S. C., on October 6, 1925.

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mill laboratory by this research laboratory or no conflict in the fields of operation as the mill laboratory begins where this laboratory leaves off. The mill laboratory cannot afford to do fundamental research work and the research laboratory cannot afford, nor has it the facilities to successfully carry on the detail work of the mill laboratory.

Practical Microscopic Methods.

The following brief description will give a general idea of methods which may be used in a mill microscopic laboratory. In the study of the penetration of starch into yarn or fabrics, or the penetration of dyes into fibers, it will be necessary to embed the specimen in a resistant material such as paraffin, nitro cellulose compounds or soap and to slice it into thin sections. For studying the penetration of dyes into single fibers or bundles of fibers, very thin sections are necessary and an embedding material capable of holding the fibers in their relative positions such as would be required for yarn, is not necessary for this purpose. Paraffin is the most practical and with good work in embedding, it is possible to cut sections of fibers embedded in this material as thin as a twenty-five thousandth of an inch. Such thin sectioning requires an excellent microtome and a very carefully sharpened razor. Thicker sections may be cut with an ordinary razor or a jackknife. Thick sections can be used for coarse work and in many cases they serve every purpose.

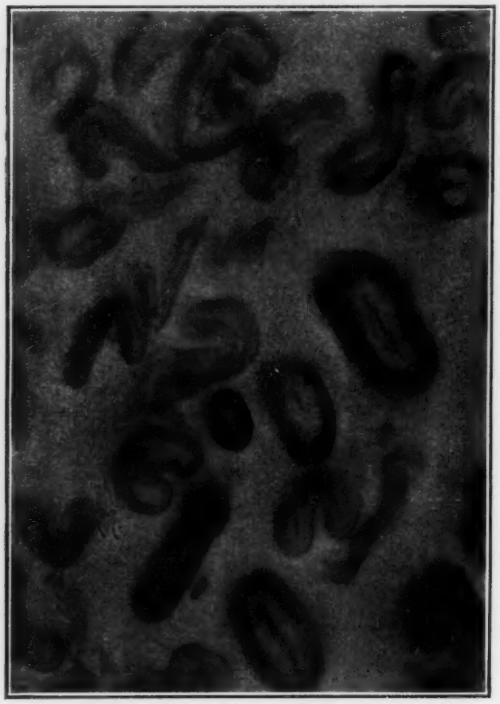


Fig. 1-A. Turkey Red dyed cotton showing the variable penetration of the dye into the fiber.

Figure 1 shows slight penetration of dye into yarn. Fig. 1-A shows penetration of dye into fiber. These specimens were embedded in a nitro cellulose compound.

Figure 2 is cotton warp yarn embedded in nitro cellulose compound, sectioned a little less than a thousandth of an inch thick, the starch being colored with iodine, mounted in heavy mineral oil (Nujol) and magnified one thousand diameters.

Figures 3, 4, 5, 6 and 7 are sections of Artificial Silk ("Rayon") embedded in paraffin, cut a quarter of a thousandth of an inch thick and photographed at about three thousand diameters.

Figure 8 is common mercerized cotton embedded in paraffin, sectioned at a quarter of a thousandth of an inch thick, magnified about five thousand diameters. This shows several interesting peculiarities of the fiber such as "season cracks" shown at lower magnification in Fig. 9.

At five thousand diameters, the wave length of green light of a fiftieth thousandth of an inch would be a tenth of an inch. Many of the high magnification photographs were taken through a "B" green screen, Wratten Wainwright, three color half tone series. In spite of the loss in detail of the high magnification photographs, there is a psychological advantage when used by the finisher or dyer not acquainted with microtechnique, as he can clearly see the detail of the starch in the yarn or the dye in the fiber and this is of more importance than fine detail of the structure of the fiber or yarn in which he has little interest.

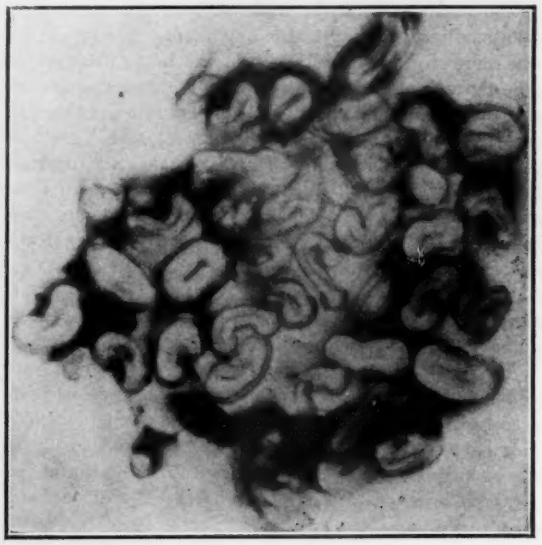
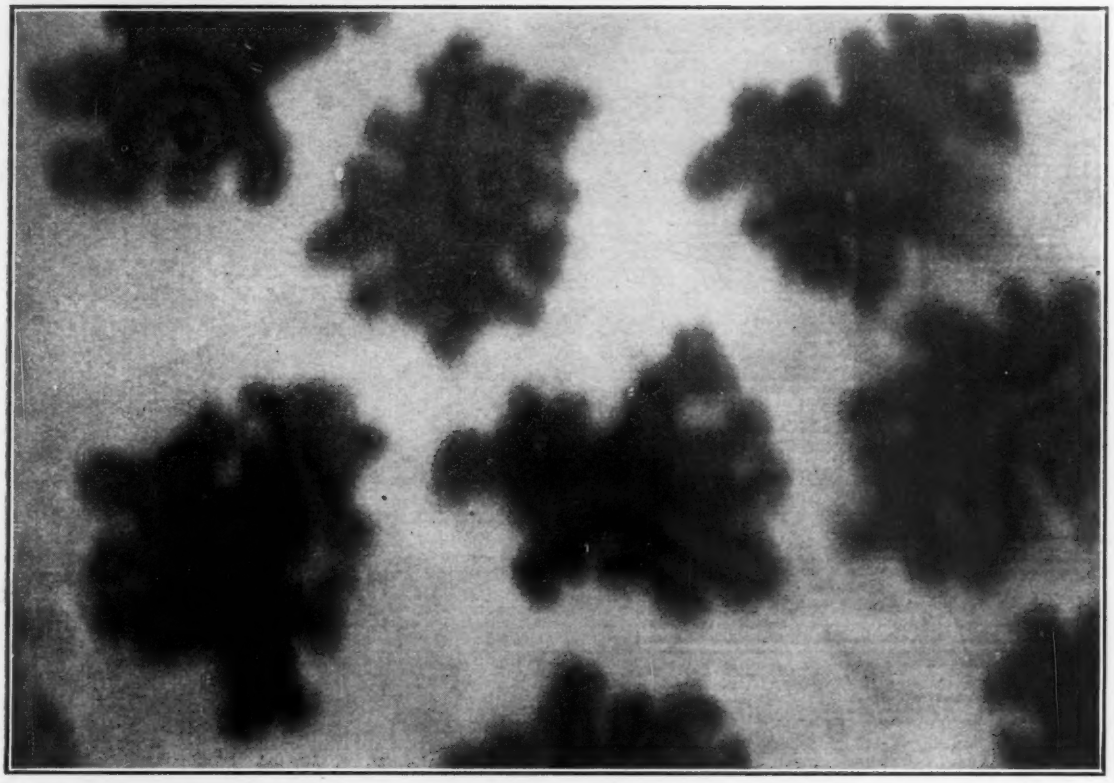


Fig. 2. Section of cotton warp yarn showing the penetration of the warp size into the yarn, the yarn being embedded in nitre cellulose and the size being stained with iodine.

Staining.

A valuable assistant to microscopy which has been little used in textiles, but which is in general use in histology and bacteriology, is the use of dyes which will selectively take on different parts of the fiber or fabric, showing detail which throws light on the question under investigation. The most simple of these stains is iodide for showing starch. Sudan III will take on oils. Congo Red will differentiate between acids and alkalis. Bismarck Brown and Methylene Blue take on oxycellulose. Croceine Scarlet takes on some proteins and may be used for showing the thoroughness of bleaching or mercerization. There is doubtless an immense unexplored field in connection with the use of dyes for demonstrating peculiarities and defects in fibers and finishing.

Figure 10 shows some jute fiber which has been somewhat oxidized by long exposure to moisture, light and air. It will be noted that some of the fibers have taken the Methylene Blue stain and others have not, as shown by the



Figs. 3, 4, 5, 6 and 7. Typical sections of Rayon of the makes in most common commercial use. All micro-photographs shown in this article are full size.
Fig. 3.

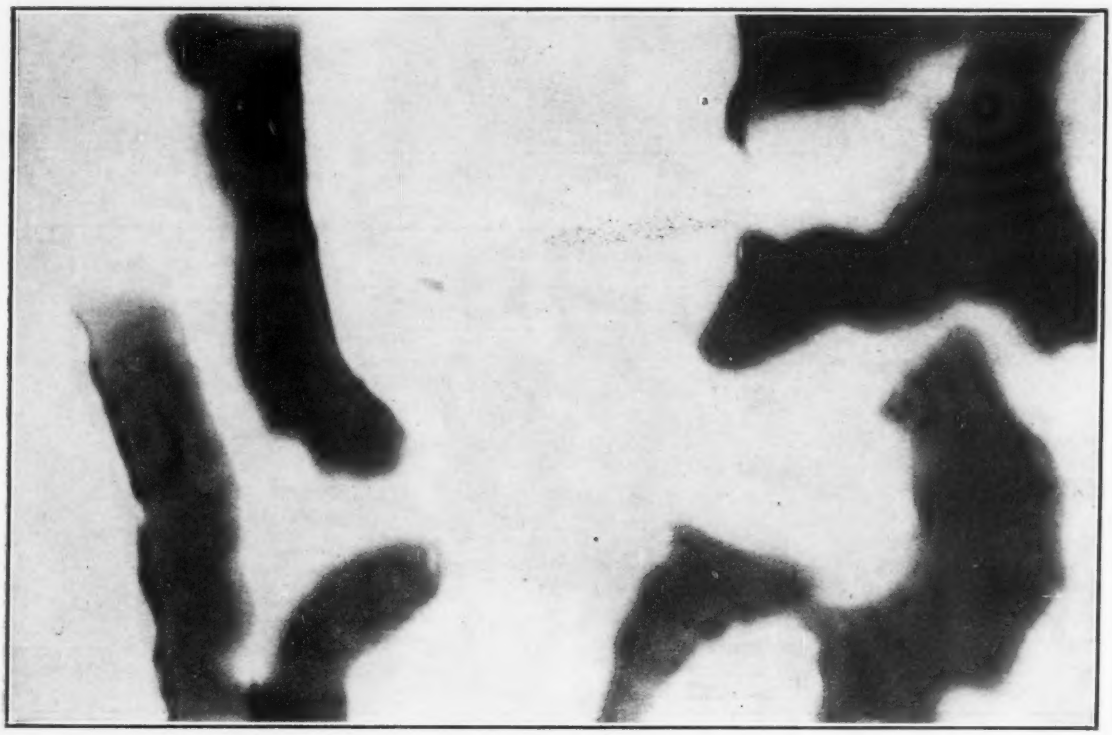


Fig. 4.

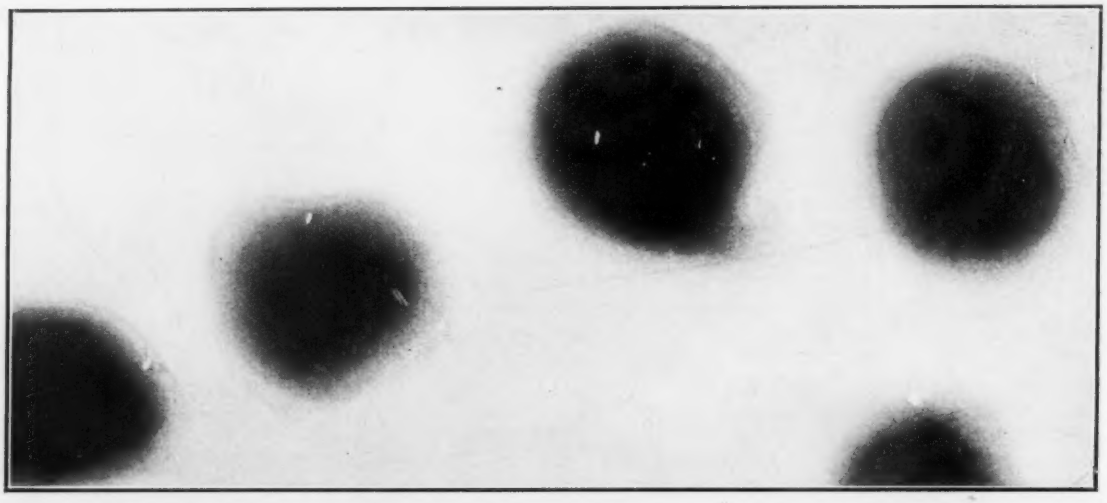


Fig. 5.

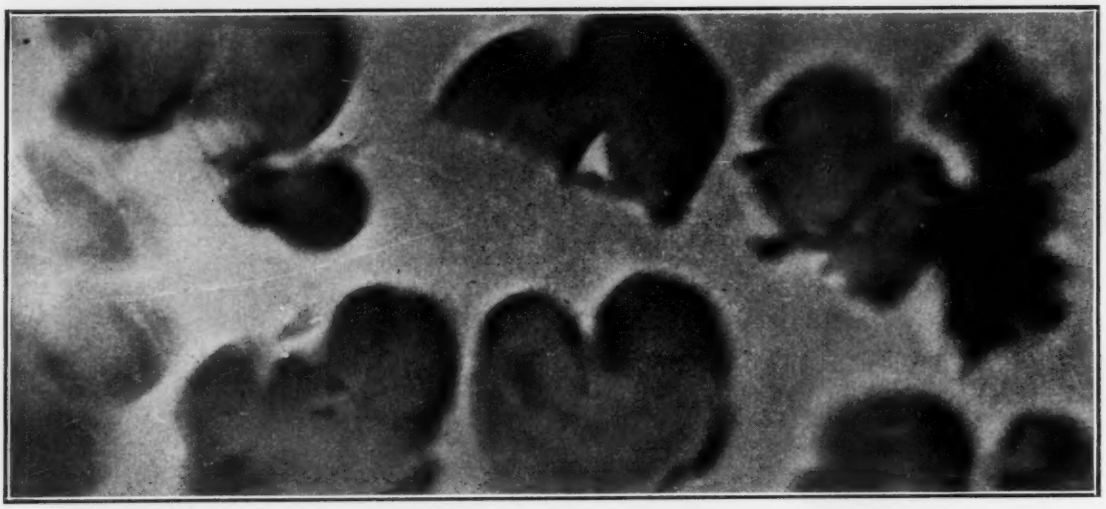


Fig. 6.

Fig. 7.

Fig. 8. Mercerized cotton dyed with Congo Red, showing the effect of "surface cracks" on the penetration of the dye.

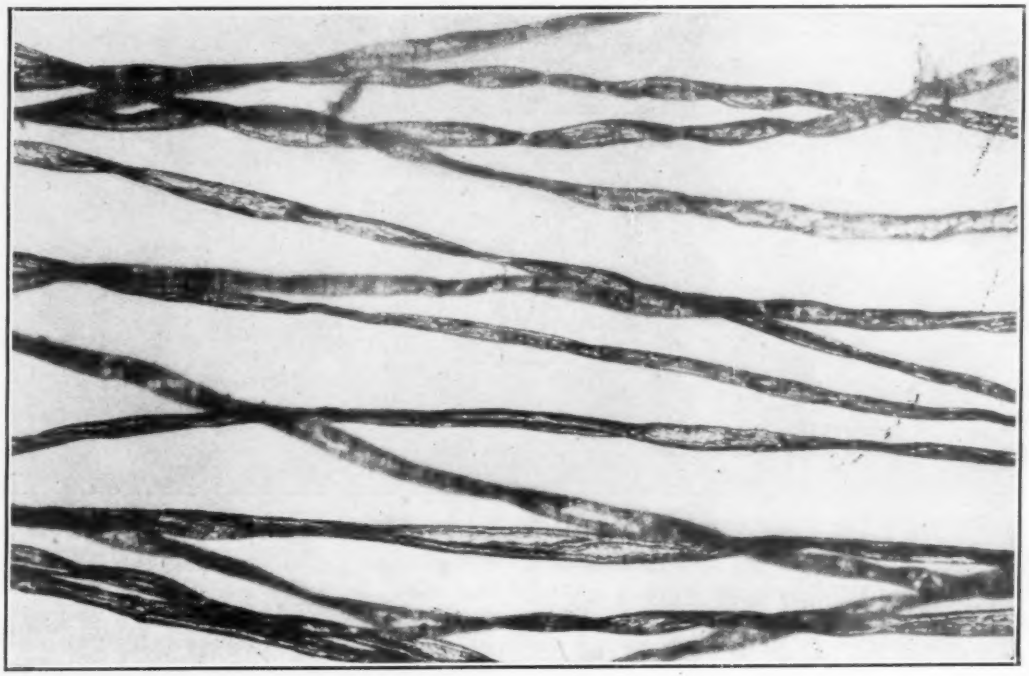


Fig. 9. Cotton fiber at low magnification (about 200 diameters), showing the "surface cracks" highly magnified in Fig. 8.

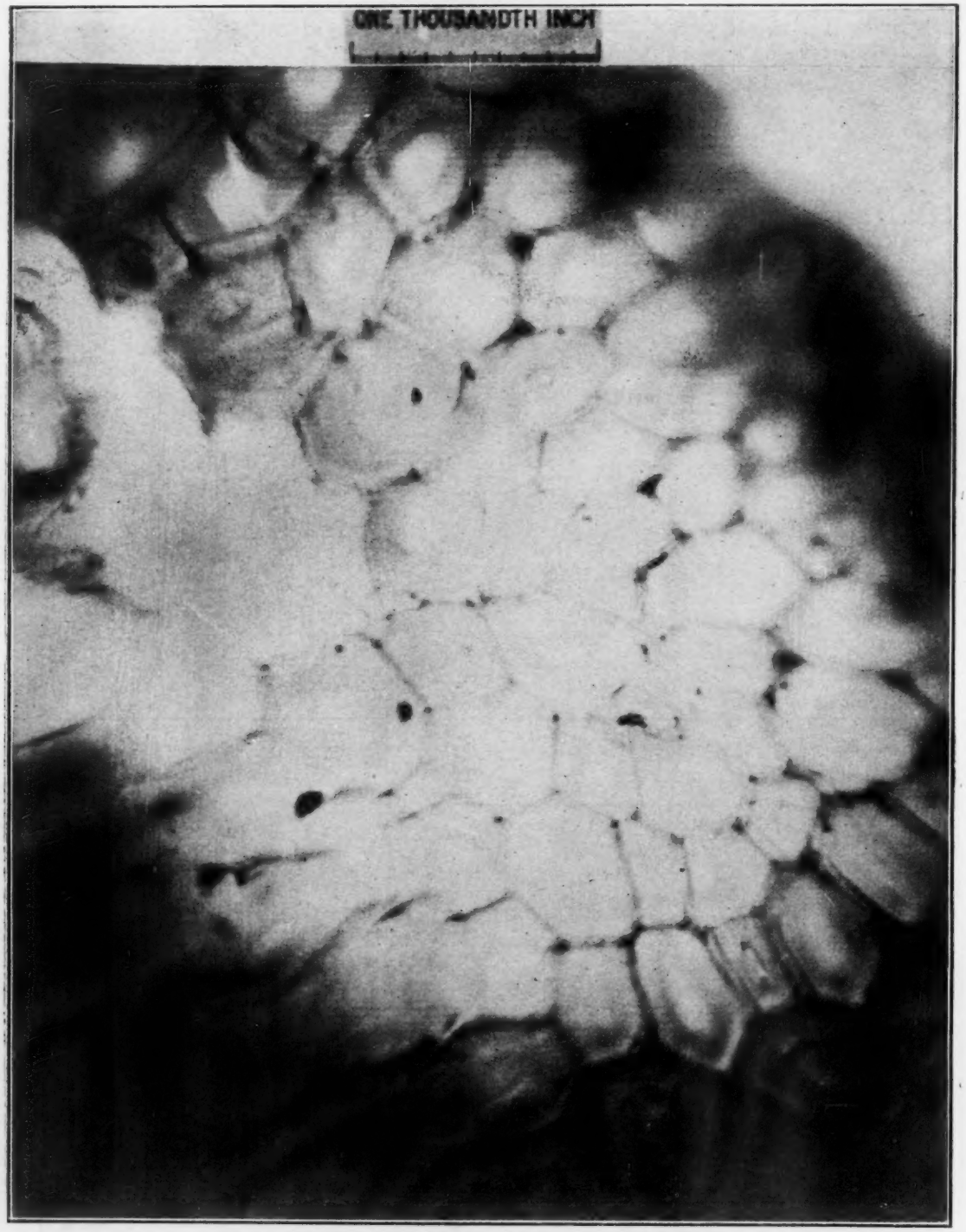


Fig. 11. Highly magnified sisal fiber stained with Methylene Blue, showing oxidization on the outside of the fiber.

darker color. Fig. 11 shows another ligno-cellulose in which the blue stain has taken on the outside.

A method of using such photographs which has practical value is to make a sufficient number of prints for the different men responsible for the dyeing or finishing in question and to give each a copy, making other sections and photographs from time to time as modifications in the dyeing or finishing processes indicate that improvement has been made. By this method, slight modifications can be made in the dyeing or sizing formulas without taking the chance of damaging a large amount of valuable goods, and at the same time, carrying out the work on a manufacturing, rather than a laboratory scale.

By embedding in paraffin, a specimen of yarn or fiber

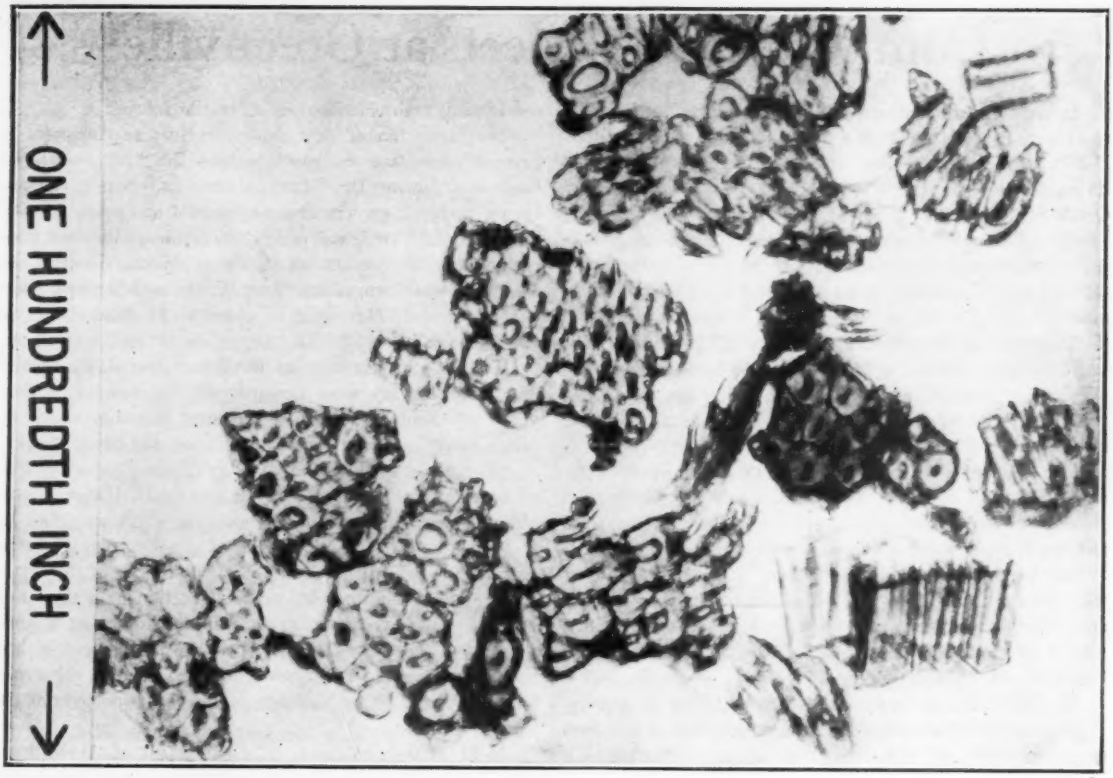


Fig. 10. Oxidized jute fiber stained with Methylene Blue, showing some fibers very thoroughly oxidized and others with comparatively little oxidization.

brought in in the morning, can be embedded, sectioned and photographed by noon, whereas with the use of the nitro cellulose process, several days would be required, thereby making many experiments on the modifying of processes, slow and expensive.

F. H. Bowman in his book entitled "The Structure of the Cotton Fiber," published in 1908, leaves the impression that very expensive microscopic lenses and microscopic methods of extraordinary complication are necessary in the microscopic study of fibers. At the time at which he carried out this work, apochromatic lenses were much more expensive than they are now. A suitable microscope, microtome and necessary lenses and appurtenances need not cost more than $500.

Bulletins on National Alizarine Sapphire BN and National Sulfur Yellow 2G have been issued by the National Aniline & Chemical Co., 40 Rector St., New York City, describing these two new colors. The bulletin states that the former yields shades considerably greener and brighter than National Alizarine Sapphire, and is particularly suitable for ladies' dress goods, carpet yarn, etc., possessing fastness to water, stoving, rubbing, hot pressing, and decatizing. The Sulfur Yellow 2G, it is stated, shows a marked improvement over the former type of this dye, and possesses excellent solubility. Samples show it on cotton and rayon.

Effective October 1st, the General Dyestuff Corporation, 122 Hudson Street, New York City, is handling orders for the goods manufactured by the Grasselli Dyestuff Corporation, 117 Hudson Street, New York City.

An aluminum graphite paint has been added to the line of the Joseph Dixon Crucible Co., Jersey City, N. J. It is composed of aluminum combined with the flake silica-graphite pigment and boiled linseed oil, with a luster slightly less than a straight aluminum paint, it is stated.

W. J. JORDAN has returned to his former position as overseer of spinning at the Swift Manufacturing Company, Columbus, Ga.

E. A. FRANKS has resigned as superintendent of the Drayton Mills, Spartanburg, S. C., and has accepted the superintendency of the Dunean Mills, Greenville, S. C., succeeding J. N. Badger, resigned.

SMITH CROW has been promoted from overseer of carding to superintendent at the Drayton Mills, Spartanburg, S. C., succeeding Mr. Franks.

L. E. LANE has been made superintendent of the Indian Head Mills, Cordova, Ala., it is reported.

D. J. HOWARD has resigned as superintendent of the Ozark Cotton Mills, Ozark, Ala.

H. C. LONG, JR., treasurer of the Rhyne-Anderson Mills, Troy, N. C., has resigned and become treasurer of the Aileen Mills, Biscoe, N. C., succeeding Sterling Graydon, who has resigned but who continues active in its management.

W. G. FRAZIER, overseer of No. 4 weaving at the Loray plant of Manville-Jenckes Co., Gastonia, N. C., has been made night superintendent.

EUGENE RAYMOND, SR., has been promoted to the position of night second hand of carding at the Ashland Cotton Co., Jewett City, Conn., succeeding Harvey Maynard, resigned.

Committee D-13 Meets at Greenville

Interest among southern mill men in textile testing and specifications received a definite impetus when Committee D-13 of the American Society for Testing Materials held its semi-annual meeting in Greenville, South Carolina, on October 5th and 6th. This society is operated for the promotion of knowledge of the materials of engineering, and the standardization of specifications and the methods of testing, and Committee D-13 concerns itself with textile materials.

This being the first meeting, not only of Committee D-13, but of any Committee of the Society, to be held South of Washington, was a recognition of the southern textile development, and established the wisdom of the move in the interest created in the work.

The first day of the meeting was given over to an automobile tour to points of especial interest in Greenville. A large number of those attending were from New York and the East, and these visitors were given the opportunity to witness a cotton gin in operation; other points visited were the Parker Mill District School, and the Union Bleachery. On Monday evening various sub-committee meetings were held at the Poinsett Hotel to draft out recommendations for the general meeting.

Dr. W. F. Edwards, U. S. Testing Co., New York City, is chairman of Committee D-13, and presided at the first general session of the meeting, which was opened in the Ball Room of the Poinsett Hotel at 10 o'clock on Tuesday morning, October 6th. In a preliminary address, Dr. Edwards outlined the development and growth of the society, with especial reference to Committee D-13, which gave the southern visitors unfamiliar with the work a background of this activity.

In 1882, in Munich, said Dr. Edwards, the International Association for Testing Materials had its inception, being formally organized in Zurich in 1895, and at the Stockholm meeting two years later, it was decided to encourage consolidation in various countries by the organization of separate societies in each country. The American members took advantage of this and organized at Philadelphia in June, 1898, as the American section of the International Association. In March, 1902, they applied for a charter under the present name, having met annually since the incorporation.

The first four years of the Society's activities were devoted to steel, but in 1912, the sub-committees on lime and rubber products were created, the latter being the forerunner of the textile committee, which was formally recognized in March, 1915. The committee was a small one at starting, made up of only 17 members, 11 non-producers and 6 producers. In the first year of organization, the committee presented a report relating to bags and bagging materials and to automobile tire fabrics and formulated tentative tests for automobile tire fabrics. In 1916, four tentative standards, giving tentative tests for automobile tire fabrics, hose and belting, etc., and bags and bagging material, and tentative methods for testing cotton fabrics, were proposed. The "Tentative Methods for Testing Cotton Fabrics" became the first textile standard in 1920.

Dr. Edwards then traced the further growth of the committee to the present time, when it comprises seventeen sub-committees devoted to various phases of textile testing and considering each classification of textile fabrics.

The formation of new sub-committees and changes in present committee designations was the first feature of business following Dr. Edward's remarks. A new committee on Sugar Bags was created, as well as one on Woolen and Worsted Yarns, and one on Woolen and Worsted Fabrics. Then the present committee on Wool, Woolens and Worsteds was changed to "Raw Wool," and the committee on Yarns and Threads was changed to "Cotton Yarns and Threads."

K. B. Cook, secretary of the committee, C. B. Finckel and A. M. Tenney were named by the chairman as a committee to decide the place of the next meeting, which received some discussion when the subject was brought up.

"The Moisture Factor in Textile Testing" was the title of a valuable paper by Professor George B. Haven, of the Massachusetts Institute of Technology, which was read by Dr. Edwards, as the next feature of the meeting. Extracts from this paper will be found on another page of this issue.

The sub-committee on the Identification of Fabrics, of which E. H. Davis is chairman, reported following Professor Haven's paper. Mr. Davis stated the committee had been observing the reaction of fibers to various chemicals, and these and other findings would be reported at the Spring meeting.

L. H. Dewey, of the U. S. Department of Agriculture, Washington, spoke briefly, discussing ramie and flax, pointing out that these fibers, when drying, twist in a clockwise direction, while all other long fibers twist in the other direction, and mentioning this as a very simple differentiation test. He discussed the fiber "arghan," which also is called "Honduras silk," and demonstrated that while it possesses great strength, the reports that have been published hailing it as a substitute for cotton were in error by exhibiting a sample of the arghan, which showed the fiber to run several feet in length.

D. E. Douty, vice-president, U. S. Testing Co., New York, next made the report of the sub-committee on Nomenclature and Definitions, of which he is chairman. This was taken up in detail, and the great number of recommendations made by the committee were adopted tentatively to allow more consideration before a final adoption at the Spring meeting. This report concluded the morning session.

The afternoon meeting began with the report of the sub-committee on Tire Fabrics, made by W. H. Moore, chairman. This sub-committee now is working on tentative specifications for electrical cotton tapes, Mr. Moore stated, but that at present they have no measuring device for determining the thickness of such fabrics.

An address, with stereoptican illustrations, on "Micro-Technique in Textiles," by F. J. Hoxie, engineer and special inspector, Associated Factory Mutual Fire Insurance Companies, Boston, Mass., was the next feature. Mr. Hoxie's address, with the illustrations used, appears on another page of this issue of COTTON.

J. L. Meade, manager, fabric laboratory, The Fisk Rubber Company, Chicopee Falls, Mass., reported next for the sub-committee on Tire Fabrics. The recommendation made was that the scoring system of grading be eliminated, but after some discussion this was left open for further con-

sideration until the Spring meeting.

The final feature of the session was the presentation of the report from the sub-committee on Rayon, made by the chairman, A. M. Tenney, of Wellington, Sears & Co., Boston. This paper took the form of a report, rather than a tentative specification, being presented as a basis for discussion and suggestions. This report was perhaps the most important feature of the meeting, from the standpoint of the Committee work, and it is presented herewith. It gives to those unacquainted with the Society an idea of the thoroughness and completeness with which subjects are considered, and also furnishes a workable basis for specifications on this fiber whose use and adaptation is steadily increasing. The report follows:

Definitions.

I. General.

Rayon (formerly known as artificial silk). The generic name of filaments made from various solutions of modified cellulose by pressing or drawing the cellulose solution through an orifice, and solidifying it in the form of a filament, or filaments, by means of some precipitating medium.

Rayon yarns are composed of more than one continuous rayon filament.

Spun rayon is yarn made from cut rayon filaments, the cut filaments being twisted and drawn out into a yarn by usual spinning processes.

II. Classification.

Nitro-Cellulose (Chardonnet)—The name for filaments composed of a regenerated or denitrated cellulose which has been coagulated or solidified from a solution of nitrated cellulose.

Viscose—The name for filaments composed of a regenerated cellulose which has been coagulated or solidified from a solution of cellulose zanthate.

Cuprammonium—The name for filaments composed of a regenerated cellulose which has been coagulated or solidified from a solution of cellulose in ammoniacal copper oxide.

Cellulose-Acetate—The name for filaments composed of an acetic ester of cellulose which has been coagulated or solidified from its solution.

III. Identification by Burning Tests to Distinguish Cellulose-Acetate from All Other Rayons.

(a) Viscose, Nitro-Cellulose and Cuprammonium rayon all burn like cotton, that is, with no odor and leaving very little ash.

(b) Cellulose-Acetate rayons burn more slowly than other rayons and harden at once into a brittle substance globular in appearance.

IV. Identification by Chemical Tests.

Cellulose-acetate is readily soluble in pure acetone in concentrations of not over one per cent. This serves as a means of differentiating from other rayons which are insoluble in this solution.

Tolerances.

V. Size or Yarn Number (Denier).

The size or yarn number of rayon yarn shall be based on a denier. The denier of a yarn is the weight in grams of 9,000 meters.

Rayon yarn. The average size of each case of skeins, tubes, spools, cops, pirns, cones, or a beam warp of yarn in the singles, either bleached or unbleached, as found by test shall not vary more than five per cent above or below the specified size.

Spun rayon yarn. The average size of each case of skeins, tubes, spools, cops, pirns, cones, or a beam warp of yarn in the singles, either bleached or unbleached, as found by test, shall not vary more than five per cent above or below the specified size.

VI. Twist and Direction of Twist.

Direction of twist. The yarn shall be considered to have a right hand or regular twist if, when it is held vertical, the spirals or twist are seen to incline upward in a right hand direction, and a left hand or reverse twist when the spirals or twist are seen to incline upward in a left hand direction.

The average twist of each case of skeins, tubes, spools, cops, pirns, cones, or a beam warp of yarn in the singles, either bleached or unbleached, as found by test, shall not vary more than ten per cent above or below the specified twist.

VII. Strength.

The average tensile strength of each case of skeins, tubes, spools, cops, pirns, cones, or a beam warp of yarn in the singles, or plied, either bleached or unbleached, as found by test, shall not be less than the specified strength.

Ultimate strength, or strength at the highest yield point, may be specified.

Test Methods.

VIII. Size or Yarn Number (Denier).

A—Preferred Method.

The number or denier shall be determined (except when the rayon is on beams) from skeins which have been prepared and weighed in an atmosphere of 65 per cent relative humidity and 70 degrees Fahr., after the spools, cops, tubes, cones, skeins, or other packages from which the test skeins are to be reeled have conditioned in this atmosphere for three hours when in skeins, and twelve hours when in any of the other forms.

Any reel having a perimeter of 112.5 cm. may be used. (See note to follow.) For yarns in skein form, a speed of 100-150 r.p.m. shall be used. For yarns on spools, cops, tubes or cones, the yarn shall be drawn off over end and a speed of 200 to 300 r.p.m. of the reel shall be used. The tension on the yarn shall not be heavier than is necessary to lay the yarn smoothly on the reel at the specified speed. The skeins shall be weighed separately on a balance which shall be accurate to .25 per cent of the average weight of one skein.

Two skeins of 200 turns each from each of 10 spools, cops, tubes, cones or skeins, from one case out of every 10 cases shall be made, and the average of these 20 tests shall be the size or denier.

Rayon received on beams shall be tested as specified.

The size or yarn number in denier is calculated as follows: Size or yarn number (denier) = Wt. of 225 meter skein (grams) $\times$ 40.

The yardage per pound of rayon of any given denier may be calculated by the following formula: Yards per pound of rayon = $\frac{4,464,528}{\text{Given denier}}$ (yds. per lb. of 1 denier yarn).

B—Alternate Method.

The winding and weighing of the skeins shall be carried out under prevailing atmospheric conditions, following in all other respects the procedure outlined in *Method A*. The results thus obtained shall be reduced to a common basis of standard moisture regain for the class of rayon under test by the following formulae:

For nitro-cellulose, viscose and cuprammonium rayons

—Denier corrected to 11.5 per cent moisture regain = Denier × 111.5 per cent

(100 per cent + actual percentage of regain)

For cellulose-acetate rayons—Denier corrected to 6.5 per cent moisture regain =

Denier × 106.5 per cent

(100 per cent + actual percentage of regain)

To determine the actual percentage of moisture regain present in the sizing skeins, two groups of three skeins each shall be taken immediately after weighing and the weight of each group recorded. They shall then be placed in two separate baskets in a conditioning oven and dried to constant weight on a balance sensitive to .25 per cent of the average weight of one skein at 105 degrees C. to 110 degrees C. (221 degrees F. to 230 degrees F.). The moisture regain of each group shall then be computed as the percentage of the dry weight and the average of these two shall be the actual percentage of moisture regain in the sizing skeins.

Note: In a laboratory which is equipped for testing cotton yarns only, the skeins may be prepared on any reel having a perimeter of 1½ yards. Each skein must contain 200 ends as before.

If a skein of this length is used the yarn number or denier must be calculated by means of the following formulae:

If the weighing is made in grams the yarn number or

$$\text{denier} = \frac{\text{Wt. of 300 yd. skein (grams} \times 1.64)}{\text{.05 grams per denier}}$$

If the skeins are weighed in grains—

$$\frac{\text{Wt. of 300 yd. skein (grains)} \times 1.64}{\text{.7716 grains (per denier)}}$$

IX. Strength.

A—Preferred Method.

One skein from each of the ten spools, cops, tubes, cones or skeins drawn for a sample shall be prepared as described under Size or Yarn Number. The number of turns in these strength skeins shall be as specified in Table I. For sizes which require 200 ends, ten of the sizing skeins may be used if desired.

TABLE I.

Denier of Rayon	No. of Turns in Strength Skein
1—50 denier	400 turns
51—75 "	200 "
76—120 "	150 "
121—200 "	100 "
Over—200 "	50 "

After conditioning for at least three hours in an atmosphere of 65 per cent relative humidity and 70 degrees Fahr., these ten skeins shall be separately broken on an automatic power yarn tester of inclination balanced type of 25 Kg (55 lbs.) or 50 Kg (110 lbs.) capacities. The lower capacity shall be used until the swing of the pendulum exceeds an angle of 45 degrees from the vertical. When yarns break above this mark the higher capacity of testing machine shall be used.

The machine shall be equipped with an automatic charting device to record stretch at any load.

Any tendency to friction, back lash, or play in the recording device, lower jaw, or screw, shall be overcome as far as practicable by counter balancing.

Jaws or clamps for holding the 200 end test skein shall consist of flat metallic jaws. These shall be covered with one layer of rubber tire tape which shall press directly against the specimen. One gripping surface shall be hinged or swiveled and the other shall be rigidly connected to the frame of the jaw. The pressure between the jaws shall be secured by any suitable mechanical device so constructed as to grip the yarns firmly before the testing load is applied and prevent visible slippage during the progress of the test.

The initial distance between jaws shall be 10 cm. (4 inches). The skein to be tested shall first be clamped in the upper jaws, spread out evenly so that the ends are parallel, forming a ribbon approximately 3/8 inch to 6/8 inch wide. The rayon is then drawn down through the lower jaws and spread out to make a band of equal width, pulled just taut and clamped.

Speed. The pulling jaw shall travel at a speed of 6 inches per minute. One test shall be made on each of the ten skeins prepared as in paragraph 25, and the average of these ten tests shall be the strength.

B—Alternate Method.

Five single strands from each of ten spools, cops, tubes, cones, or skeins, shall be broken after conditioning skeins for three hours and any other form of package for 12 hours in an atmosphere of 65 per cent relative humidity and 70 degrees Fahr. A single strand tester of proper capacity with the jaws set 10 inches between grips and having a speed of pulling jaw of 12 inches per minute, shall be used.

The average of 50 tests shall be the ultimate strength.

X. Twist.

The twist shall be determined on any standard twist tester with the jaws set 10 inches apart. The yarn shall be clamped in the jaws under a definite tension by attaching weights. The tension to be used shall approximate a value to be determined by the following formula:

$$\text{Tension in grams} = \frac{\text{Specified denier}}{30}$$

Example:—The weight for 150 denier rayon would be $\frac{150}{30} = 5$ grams.

Two tests, from each of five spools, cops, tubes, cones or skeins, shall be made and the average of these ten tests calculated to turns per inch shall be the twist.

Moisture Regain.

The standard moisture regain of nitro-cellulose, viscose and cuprammonium rayons shall be 11.5 per cent of the dry weight.

The standard moisture regain of cellulose-acetate rayons shall be 6.5 p r cent of the dry weight.

The concluding feature of the meeting was a banquet on Tuesday evening, given for the visitors by the Greenville Chamber of Commerce. T. M. Norris, president of the Chamber, was toastmaster, and the address of welcome was made by Dr. F. P. Gaines, of Furman University. A pleasing musical program by Greenville artists interspersed the addresses.

C. L. Warwick, secretary-treasurer of the American Society for Testing Materials, in an address on the work of the society, outlined its history and the scope of its activity in an interesting manner. Dr. D. W. Daniel, of Clemson College, was the next speaker, bringing his usual

happy vein of thought into the occasion.

The last speaker was Dr. Edwards, chairman of Committee D-13, who discussed "Fabric Testing and the Standardization of the Textile Industry." Dr. Edwards said in part:

"It is often easier to establish a standard than it is to establish an accurate and satisfactory method of comparing like units with it. We may say that methods of making comparisons are continuously undergoing investigation looking toward improvement and has enlisted in its service some of the very best talent as measured by training and experience. This spirit for accuracy in comparing physical and chemical units and units of time and of angular measure with definite standard units has been of incalculable value in fostering that spirit of extreme accuracy that now permeates scientific investigation in general and which is becoming day by day more essential to progress in scientific investigations.

"The textile testing houses do not compare with standards as there are no standard fibers, yarns or fabrics but tests under standardized conditions are compared and the quality of the different yarns or fabrics are inferred from a comparison of results of like tests. The extreme accuracy and repeatability of the physical units are not possible in the textile laboratory but the same care as to detail in making the test should be given to it as would be exercised in tests where more accurate comparison might be expected. If we will exercise this care continuously and search for explanations of discrepancies with the same zeal that we require in the investigation of our bookkeeping to find an error of perhaps only a few cents as shown in the trial balance we shall come to realize that there is a practical degree of accuracy and repeatability in textile testing that is quite sufficient for ordinary commercial purposes and incidentally we should become better acquainted with our raw materials and the products manufactured from them.

"I should perhaps digress for a moment lest I leave the impression that government standards departments were an entirely new development as an outgrowth of the controversies on science and theology in the nineteenth century. As a matter of fact the controversy developed an interest in tracing the migration of peoples and their manners and beliefs from one country to another. These studies produced scores of volumes in the fifty years from about 1840 to about 1890 which might be grouped together as books on ancient metrology. These studies show that all prominent ancient countries preserved standards of length, volumes and weights and coins (essentially weights) either in their temples or their capitols, not for scientific but for commercial purposes.

"These were all lost in the Dark Ages. The first recorded revival of the idea of standards seems to be the decree of King Henry of England in the year 1120 that the ell should be the exact length of his arm. The order does not specify which arm and makes no provision for the preservation of the standard. We must remember, however, that the year 1120 was well within that period of obscurity which preceded the revival of learning.

"Standardization in the twentieth century has taken on added meanings with a resultant confusion of ideas. Anything serving as a basis of comparison to determine the degree of excellence is embodied in the idea and leads very far afield in its variety of application embracing even things or qualities that do not lend themselves to ready comparison. We have for example the "Standard White Rat" described as perfectly healthy, actively growing and absolutely free from disease, constitutional, infectious, contagious or parasitic. We are assured that this description will be verified by any one of a large number of laboratories, hospitals and institutes and the Fleischmann Company and the Eastman Kodak Company. We have many suggestions on the standardization by tests more or less physical and mechanical of judges for our courts and professors for our universities and along with this we are endeavoring to find a way to standardize our boys and girls by standardizing the course of study and the method of stuffing it into the boys and girls. At the same time we are attempting to standardize our home life to the time of the alarm clock and are drifting away from standards of conduct and morals and have even gone so far as to suggest octogenesis which would of course become standardized as a means of propagating the race without undue interference with careers. The story of Icarus of Greek mythology might be read to advantage by these hectic dreamers.

"The spirit of let George do it but let me prescribe the method has brought about standardization by legal enactment often forced by militant minorities some of it verging on the ridiculous as shown in legislation specifying the size and shape of bedding used in hotels. The standardization of chauffeurs by speed reaction tests as shown by a powder smudge on the road made by the burning powder of the signal pistol is destined to become legalized standard as soon as a little data is collected from different testing fields. The best chauffeur will be the one who can run the nearest to a pedestrian at full speed without running him down. A delightful prospect.

"One might dilate at great length on prospective standardization and leave much to be said but it would serve no useful purpose. However, I wish to devote a few minutes to outlining very briefly one phase that could be applied to the textile industries with possible far-reaching utilitarian values.

"Improvement of raw materials has been a common outgrowth of the experimental work that accompanies scientific standardization. The raw materials in this case are the textile fibers themselves. We have continuously improved the grading of the fibers and have learned a great deal about their physical and chemical properties en masse in yarns and fabrics from the work in our technical laboratories, from the manufacturing processes and from long experience in the use of the finished products. But even in this aspect we may have much to learn as indicated by a simple example which may be taken from the experience of D-13 in comparing strength tests made on similar cotton fabrics in different laboratories. Wide discrepancies were found which on investigation proved to be in large measure differences due to difference in the moisture content of the fabric at the time of testing. A research under the direction of Prof. Haven at the Massachusetts Institute of Technology has resulted in a correction formula that has given very satisfactory results in practice. Incidentally this research showed that 8½ per cent regain for standard atmosphere of 65 per cent relative humidity at a temperature of 70 degrees F. was too high for the mechanical cotton fabrics such as tire fabrics.

"There is very much to learn about the variations in the chemical and physical properties and the histological structure of the fibers as individuals and then the relation of

these variations to the processes of manufacture and to the variations found in the manufactured product before we can be in sound position to suggest the kind of improvement in the fibers that would be of commercial value. This is work that will require the cooperative direction of a staff of the best trained and most experienced scientific men in chemistry, physics and biology, including several of their special branches in order to get results within a a reasonable time.

"Some recent work on the swelling of cotton hairs by various reagents but especially mercerizing reagents under the auspices of the British Cotton Industry Research Association has taken the right direction and is considering the bearing of bistological structure on this problem. This together with the investigation on rayon manufacturing processes is all of the right kind. The United States should take a leading part in a cooperative and progressive spirit."

Texas Textile Convention at Denison

The textile men of Texas foregathered at Denison, Texas, on Friday and Saturday, October 9th and 10th, for a meeting which constituted the semi-annual convention of the Texas Textile Association. There was a sufficiency of interesting practical discussion, of good fellowship and of entertainment to warrant decisively the designation of a success for the gathering.

In the discussion portion of the meeting, the men seemed eager to delve into the heart of things, with the result that, while the discussion was confined to a comparatively small number of questions, those subjects were thoroughly thrashed out and a sufficient amount of time spent on them to cover each topic very completely.

Following the usual custom of the Association, the convention opened on Friday afternoon with the registration of delegates at the Denison Cotton Mill, of which H. G. Edmiston, second vice-president of the Association and host to the convention, is the superintendent. After the registration, conducted by Secretary-Treasurer Dan H. Poole, superintendent, Sherman Mfg. Co., Sherman, Texas, an inspection trip through the mill was made by the visitors.

At seven-thirty o'clock Friday evening, the convention was brought formally to order, with Mr. Edmiston in the chair. Robert W. Philip, associate editor of COTTON, Atlanta, Ga., was called upon for the invocation, following which the members sang a verse of "America," led by H. E. Runge, of the Draper Corporation.

Messrs. Runge and Philip, of the notorious Southern Textile Association Orchestra, which has brought ignominy upon itself and sacrilege to the name of Music, were introduced. Together with two Texas artists—I. G. Moore, of the South Texas Cotton Mills, and C. E. Reid, of the General Electric Co.'s Dallas office—who were recruited and trained for the occasion, these so-called musicians inflicted some of their infamous inharmonious agony upon the members through the medium of Australian kazoos.

No casualties being reported, some further and more delightful entertainment was supplied by the Denison committee, in charge of Joseph Boyd. Mayor W. S. Hibbard, of Denison, made a brief address of welcome, following which President Grover C. Dilling, superintendent, Brazos Valley Cotton Mills, West, Texas, assumed the chair and called upon H. F. Lichte, of the textile department of Texas A. & M. College, to respond to the mayor's welcome. Mr. Lichte also exhibited samples of fabrics containing rayon or artificial silk, and spoke briefly regarding its adaptation for use in fabrics.

Care of Harness and Reeds.

President Dilling then began the practical discussion, taking up as the first question, "The Care of Cotton Twine Harness and Reeds." He called upon his overseer of weaving at West, J. V. Hunt, for an expression.

"It's steel harness that I've learned more about recently," responded Mr. Hunt, "but with regard to the care of cotton harness and reeds, we do two things that may be of interest. We have a rack to stand our reeds up in at about a ten-degree angle; in putting them in that way we hardly ever have any damaged reeds. For the cotton harness we have a steel frame on a post with about a 2x¼-inch arm on each side, rounded off at the ends, and we hang our harness on these. There are no splinters to damage the harness."

"The harness bill is quite an item," said Mr. Dilling, "and it seems to be getting worse each year. The harness doesn't last like it once did. I don't know whether it is the way they are made or what, but I know of other mills which are having a hard time with twine harness, and any points regarding their care will be of interest."

Mr. Edmiston asked whether Mr. Hunt's plan of storing harness is better than having a rack built so that the ends of the harness rest on it instead of having the rod or arm come through the harness. J. M. Crosby, overseer of weaving, Texas Cotton Mill, McKinney, agreed that Mr. Hunt's method involved the possibility of injury or damage to the harness.

"Has anyone had any experience with re-varnishing the eyes of twine harness in order to keep them from wearing out?" asked the chairman. "I heard that Mr. Wilson tried that, and I want to hear from him," suggested Mr. Hunt. "We tried it at West, and I thought it was the real stuff to make them last longer, but we later discovered that this stuff we put on there loosened the old stuff, so that it really did no good that we could see."

"I remember trying shellac once," responded J. O. Wilson, superintendent, Guadalupe Valley Cotton Mill, Cuero. "It was on mail-eye harness. We had some trouble with the twine slipping in the mail-eye, and that was the only way I could find to stop it. The idea was to get it on there to keep the twine from slipping in the eye. Later we got some better harness and did not have to do this."

O. H. Vincent, overseer of weaving, Dallas Textile Mills, Dallas, stated here that practically all of the troubles brought up in connection with twine harness would be eliminated by using steel harness. "There is no stretch to steel harness," he said. "It is the same thing always. I have always been partial to it, but we cannot use it where we have a drawing-in machine. You must have a tying-in machine."

"As I understand this question of the care of harness," said Mr. Poole, getting back to the specific topic, "quite a bit depends on the loom-fixer in the weave room knowing how to set his harness and then setting it that way. Just a

short time ago a new pair of harness came off of the loom after the first warp was out, and upon investigation we found that the loom-fixer had overlooked setting the harness properly, and they had rubbed, and a new pair of harness had gone to the bad."

Mr. Dilling brought up the experience of a mill having unusual difficulty with the harness cutting at the top and bottom, especially at the top, and among the causes suggested were: too wide a shed, and the jack straps being set too close together on the treadle.

J. T. Chappell, overseer of weaving, Sherman Mfg. Co., Sherman, who until recently held the same position at the Dallas Cotton Mills, spoke next. "We have had in Dallas for the last four years a good experience on harness," he declared. "We have not been able to get a harness that would hold up. Our harness cuts especially at the bottom. There are several reasons why; it is due to the fact that we had to have too large a shed; another thing that causes it is the fact that the Texas mills have been pushed up lately to make better goods, and they are running the warps and harness tighter. We used to be able to run a slack warp and harness, but can't do it now."

J. G. Coman, superintendent of the new Mexia Textile Mills, at Mexia, Texas, was next called upon in connection with the harness problem to give his experience. "We used cotton harness when we started up," he replied, "but we found that we got about three months' life out of it. At the end of that time they would be practically worn out at the bottom and the top. We have been running our warps fairly tight and sizing fairly heavy, and running some very low grades, and we had a great deal more trouble on the low grades than on the better quality of stuff, because it was so rough it would saw out the eye. We are trying to get away from the cotton harness and are experimenting with the steel harness and also trying out the mail-eye harness, because our experience is that the other type is too expensive to attempt to use it."

"We have been troubled a great deal at Bonham with harness wearing," said P. J. Long, overseer of weaving, Consolidated Textile Corporation, Bonham, Texas. "We have used lots of plans and we have lowered our whip rolls, etc.; we have used all the methods we knew, we have run our harness tight and slack, and slackened up on our cloth, but I cannot tell you much of help. The harness we are getting isn't as good as we got a year ago. You can take new harness and break it with your fingers."

"Do you not think that the prevailing decreased life of harness is due in a large measure to not ageing it enough?" asked Mr. Coman. "In our case we have had to take the harness almost immediately after it was made, and I do not think that any cotton harness will run well unless it has been properly aged. I think a six-months' ageing will make harness better."

Mr. Dilling said he felt like "ageing will help it provided the ageing is done at the factory where it is made and they can keep it dry, but I do not think you can keep it dry enough at the mill, with weave room humidity conditions, unless you have a special place for that purpose."

"I will tell you some of my experience with cotton twine harness," he continued. "We are running some heavy stuff on Draper looms that we would buy a set of harness for each month on these 20 Drapers, but recently we have been using steel heddles on these looms, 24 hours a day for the past six or eight weeks, and before that we had been running ten hours a day for seven months, and they are just as good today as they were the day we put them on." The cotton harness used was all-twine and not mail-eye, he replied to a question from Mr. Edmiston. "We used a mail-eye on that for a while, and it was holding up all right, but it is a hard weave and you have so much bulk in the center on the loom; however, we did have trouble with the twine breaking on the mail-eye just below where it goes around the harness stick." He did not use drop wires on the Draper looms, he said in answer to a question from Mr. Wilson.

J. R. Compton, superintendent, Gonzales Cotton Mills, Gonzales, when called upon for his experience, stated that in his opinion, "Mr. Chappell's theory as to the service of harness is pretty much correct. I remember very distinctly a short time ago that our selling agent was talking with our manager and he said he had noticed that most of the mills were putting on lots of starch and he thought it would be a good idea for us to try that. The big trouble there is in adding starch to the warp without adding more softener, which will give it a tendency to cut the harness out, and I warn you when you add more starch to put in more softener, else your harness will not last as long.

Grover C. Dilling, President.

"Running the whip roll too high will have a tendency to cut the harness out, in running heavy duck especially, where most mills run a large shuttle and have to use a large shed. Running too large a harness cam puts more strain on the warp and it has a tendency to saw back and forth in the harness and cut it out.

"The best way I have found to care for harness is to have a frame made to fit the harness with the top shaft longer than the bottom, and have the frame made so that it will not press the eyes together, as that will get the 'spring' all out of kilter and the drawing-in machine will not work as well. Mr. Hunt's idea of putting it on a steel frame is all right, if you do not have that bar so thick that it will press the eyes together."

Colyar S. Tatum, superintendent, Consolidated Textile Corporation, Bonham, Texas, was next requested to discuss the subject. "This is a problem that has bothered us more

than any one thing," he said. "Our harness bill will be almost double what it was two years ago, and I feel it is an item worthy of serious consideration. There have been a number of good points brought out here tonight, but there are one or two things that might be stressed a little more. I do believe that it very important to have the proper racks for hanging the harness, and I believe it is better to have the frames spaced so the ends rest on them; even if you use an iron bar it will strain the harness a little bit.

"As to ageing, the information that I have been able to get from the harness manufacturers is that they prefer to have plenty of time in making the harness rather than after they have been finished. You see, they put some eight or ten coats of varnish on the harness, and want to allow ten days between coats. Of course it doesn't hurt the harness to age after it is made, but the main thing is to give them plenty of time in the making. If a coat does not dry thoroughly it will not be so good.

"I learned that the cable twine tests stronger than the four-ply yarn, and the tests they have been making show that the cable twine is much better. However, the four-ply yarn is probably much cheaper, and I notice that they do not give cable twine to you unless you especially request it and that is a point we should remember.

"Our experience with the mail-eye harness on duck is that we get two or three times as much service as we did with all-twine harness, and have not had any trouble whatever.

"As to the care of harness on the loom, on most any loom, the warp line drawn from the whip roll to the breast beam passes above the center of the shed and when the shed opens there is more strain on the top of the eye than on the bottom. We have been experimenting with a double-knot harness and that seems to be a whole lot better, but the makers cannot use the cable twine in the double knot; if they could do that it would be much better.

"The point brought out by Mr. Compton about a large cam being hard on the harness is true, but there is also a danger of having the cam too small, in which case it becomes necessary to fasten the jack straps so far out on the treadle that it causes the harness to move out of a perpendicular. Consequently this causes a sawing action of the warp threads on the eye. To overcome this we are planning to experiment with a somewhat larger harness cam so that we may be able to fasten our jack straps further from the end of the treadle which will enable us to move the harness in a vertical or perpendicular line, and keep the same shed.

"There is another thing, and that is if the harness closes on the bottom center or earlier it will wear more. The shed is practically open when the reed beats against the fell of the cloth, and therefore it is better to set the harness to close late.

"There is one unfortunate situation with regard to weaving, and that is that anything that helps the appearance of the cloth hurts the harness, and practically everything we do to save wear on the harness injures the appearance of the cloth.

"The fact that we are all sizing more heavily is another reason we are having more harness trouble.

"A harness cam that gives too short a dwell is hardest on the harness. The quick change is more of a jerk on the harness and warp," concluded Mr. Tatum.

The next speaker on the subject was W. H. Gibson, manager, Gibson Supply Company, who until forming his new company was superintendent of the Waxahachie Cotton Mills at Waxahachie. As to steel heddles, he stated that, "I have never used them on heavy goods long enough to know whether they are satisfactory or unsatisfactory. At Waxahachie about two years ago I had a lot of twine harness that did not last over three months, and so I put in the mail-eye, and some of the those are running yet.

"The setting of the harness and the care taken of them has as much to do with the life of them as anything else. In running harness my experience has been if you have a harness cam sufficient to open the shed wide enough to let the shuttle pass through and not run the harness tight it will put less strain on it.

"As to setting the harness, it is all right to set the crank shaft a little to the front on light work, but on heavy goods it should be back a little.

"The care we give harness in hanging them up will add to the life of harness, and in setting harness, sometimes the fixer will run the screws too far down into the wood and make them tighter, and all the eyes will break. That is a point to be watched."

So far as giving any specific rule for every mill, Mr. Gibson stated that would be hard to do. "I think the high humidity has a whole lot to do with it," he continued. "We are all running more humidity in the weave room than we used to. Mr. Hunt was speaking about putting shellac on harness, and I didn't comment on it, but I think that if it does not break down the shellac it will make a burr that will chafe the yarn.

"As Mr. Dilling says, the mail-eye puts a lot of bulk in the center. If you are running this, and can use a coarser harness and run the harness on four shafts instead of two, I believes that would prolong the life of the harness and make the work run better."

In connection with this suggestion, Mr. Edmiston asked if it would not increase the drawing-in cost to use two shafts instead of one, and Mr. Gibson replied that it probably would when drawing in by hand.

Don D. Towers, agent, Worth Mills, Fort Worth, was asked to give his experience. "I am not having any trouble with harness at the present time because our goods are not sized," he said, "but I have been through some of the troubles that have come up here.

"The harness that is made today, from what I can learn, is most of it varnished and finished by a machine. In the old days we could get hand-finished harness, and they were not in such a hurry to turn the product out. You had to allow them at least six months, whereas the tendency in the last few years has been not to order harness until you have got to have them next week. We do not get the workmanship we got ten years ago.

"The point made of running a double shaft is good, and in my opinion, the only way you can successfully run a high count heavy duck is to use a mail-eye and use a double shaft. I remember one experience of running goods that ran as much as four pounds to the yard, on harness in use for ten years; it was a hand-varnished, cotton twine mail-eye, and we had plenty of room, there was no chafing.

"I do not believe it will increase the drawing-in cost; the eyes are very close together, and after the hands get accustomed to it they will like it just as well."

"What kind of harness have you at Fort Worth?" he

(*Continued on page* 65.)

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WICKWIRE SPENCER *PRODUCTS*

The Textile Diversification Dinner

Bringing together some of the outstanding leaders of the industry, and attended by perhaps the largest crowd gathered for any similar function in the industry, the Second Annual Textile Diversification Dinner, held at the Charlotte, N. C., Chamber of Commerce, on Tuesday evening September 29th, was a pronounced success. The theme of the occasion, as indicated by the name, was to consider means for further developing the diversification idea among southern mills, and the discussion opened several avenues for thought on this subject.

An intense interest was manifested by an especially close attention being given by the unusually large gathering through an extended program. This dinner was the second of a series begun last year, and was held during the time of the Made-in-Carolinas Exposition, and in connection therewith, the series having been initiated at the time of the previous show.

The committee in charge of the dinner, with S. B. Alexander as chairman, was universally congratulated for the arrangements made. The exceptionally large audience was handled with a minimum of confusion, and the program of speaking and entertainment provided was significantly impressive and distinguished.

Following the meal and a musical program by the Made-in-Carolinas Exposition orchestra, the speaking program was started. W. S. Lee, vice-president and chief engineer, Southern Power Co., Charlotte, acted as toastmaster. The first speaker presented was Hon. Angus W. McLean, governor of North Carolina, who addressed himself to the subject, "What Diversification Has Done for North Carolina." His appearance as the first speaker was made necessary by his having to leave Charlotte to fill an engagement in Raleigh, the toastmaster stated, adding, in his introduction, that the movement of diversification, in its broader aspects, was not a new one to the governor, since North Carolina had had a great diversification in agriculture and other lines as well as industrially, and he had been thoroughly experienced in it.

Governor McLean pledged his hearty approval to any effort of a constructive nature looking to more prosperity for industry, such as was being launched at the diversification dinner. Diversification, he declared, has always been essential to all commercial development, and from the beginning of the world, for manifest reasons, it has been decreed that there should be diversity of climate, of races, of natural resources; that one of the great natural laws is that man should engage in social and commercial intercourse through diversification. Thus diversification, one of the fundamental laws, has given some sections prosperity through one resource, and another success by means of another. The lack of diversification is one of the main reasons for any stagnation in business, he declared.

"I know of no place upon the face of the earth where there is greater diversity of natural resources than in the Carolinas," the governor said. "We have diversity of agricultural resources, differences in land and crops, we have the great coastal plains, this great Piedmont section, and the mountain regions, with a diversity of climate and resources, so that we are blessed by nature.

"We have found it very important and absolutely essential to have diversity of industrial resources. North Carolina is prosperous most in those sections where there has been such a development. What has made the Piedmont section the most prosperous section in the country? It is a diversity of resources. You have what we call a balance in industry; you have agricultural resources and you have your cotton mills and other manufacturing plants furnishing a home market for the products of the nearby farm. That is what has given the Piedmont section primacy in the past."

Addressing himself particularly to the textile industry, the governor declared that at the present time there is a particular demand for diversification here. Times have not been quite as good recently in the textile business as they have been in the past, and "we are beginning to look around to find out the causes." Among the causes, he declared, is the probability that the industry has had an overexpansion of plant facilities, ascribed by some to radical changes in fashion. The influence of this is somewhat exaggerated, however, he stated, as an underlying difficulty is that the business in the South is undergoing fundamental changes and is passing through a transition period. He traced the trend of the industry from the time when practically all of the raw cotton grown in the South was furnished to England and New England for manufacture, down to where the South itself entered into yarn and cloth production, confining itself more especially to the coarser counts. Now, he said, the step must be to enter into the finer goods fields, and he expressed a confidence in the ability of the South to achieve any end in this direction. "I believe we have come to a day when we must change our methods in connection with manufacturing cotton," he said. "We cannot go on in the old way and continue to be prosperous. I believe that the manufacture of standard goods in the cotton mill business has been overdone, and there seems to be a breaking away from standard constructions and a demand for special products. We must get away from the old methods of competing with our neighbors. We cannot all make yarns of a certain kind."

Further, the governor said, one of the greatest needs of the South in connection with diversification is the production of their goods ready for the consumer—to manufacture the goods to the ultimate process. And, he declared, the mills must produce what is demanded, digressing here to say in connection with present-day styles for ladies, and personally he would object to seeing the beautiful young ladies going about dressed in the fashions of bygone days; that their fashions have come to stay and mills must keep up with them. Diversification can come in one of two forms, he said, either in changes in the character of the products, or changes in the processes in which the goods are distributed.

He said that he is entirely hopeful and not discouraged regarding the prospects for cotton manufacture. "There have not been enough silk worms since the days of Confucius to supply all of the garments that could be used in the world," he declared. One mistake the cotton mills have made, he said, is that they have followed a method of manufacturing cotton goods that was uneconomical and extravagant, and have marketed their goods at such a high price that silk and imitation silks have been able to compete successfully in the same markets.

No manufacturer will admit it...

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What a few textile manufacturers say about trademarking with Kaumagraphs:—

Hess, Goldsmith & Co., New York City, write: "We recognize that the use of transfer marked merchandise advances its salability and protects the customer against substitution. We always endeavor to bring to the attention of our trade the fact that our goods are trademarked on the selvage and that the customer should look for the trademark as a matter of assurance."

* * * *

Davenport Hosiery Mills, Chattanooga, Tenn., writes: "We have used your Kaumagraph transfers for the past five years and believe they are far superior to any method we know of for trademarking and identifying our product—Humming Bird Ladies' Silk Hosiery . . . as a result, danger of imitation or substitution of our product is practically eliminated."

* * * *

Hopeville Manufacturing Co., Worcester, Mass., write: "Every piece of goods before leaving the mill is thoroughly examined and is stamped with a Kaumagraph transfer with our trademark "Hopeville Mills." Any piece of goods which does not come up to standard does not receive this endorsement. This assures our customers that each piece of goods has received inspection and passed as up to standard. It also permits us to protect our standard by attaching our trademark. We consider it very good advertising and good protection at a very small cost."

It was hard to prove the business wisdom of the idea. And textile manufacturers wanted to be shown. To trade-mark wasn't, they admitted, much trouble or expense. But why bother about it at all?

But the Kaumagraph Company firmly believed that the textile manufacturer who trademarked his products was giving his product a plus value. The trademark was a silent guarantee of faith in his own product; an assurance of quality. And Kaumagraph maintained that customers would appreciate such guarantees.

But—it was a hard thing to prove. And most manufacturers wanted to be shown. Here and there a few were won over to the idea, not because they believed it would build their business, but because they wanted to see their trademark on their product.

Imagine their surprise when they felt an actual increase in their business resulting! They found it an excellent, economical way to advertise. Old customers expressed their appreciation. New customers were attracted to buy trademarked goods.

Within a few years, the proof that had been lacking was available. Other manufacturers began to realize they were overlooking a business bet. Today it is hard to find a textile manufacturer who does not trademark his goods—and trademark with Kaumagraphs.

For if a trademark is worth applying at all it is worth applying well. The Kaumagraphed trademark is applied in two seconds with a warm or heated iron. It is a bright, neat mark; a mark that will neither smudge nor discolor. If you are not yet trademarking with Kaumagraphs, write at once for sample markings.

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In conclusion, he expressed high approval of the textile diversification dinner series, declaring that such fundamental changes as are essential must be initiated through agitation and education. He suggested the possibility of a research laboratory to show manufacturers methods for diversifying and extending their processes; declaring that the smaller mills, especially, might profit by such a service. He drew attention to the fact that the North Carolina State College has engaged James McDowell, the well known fiber and research expert, to conduct experiments and make suggestions and help out in training the students.

At the conclusion of the governor's remarks, Miss Gladys Rice, of New York City, one of the Made-in-Carolinas Exposition entertainers, was presented in a vocal selection, following which Mr. Lee, as toastmaster, explained in detail the function of the dinner.

"About fifteen months ago," he said, "there met here in Charlotte about twenty-five men, every man feeling that there was an urgent need for some plan whereby the industry in this section should begin to consider and study the advantage of diversifying their products and make what the consumer wanted. About one year ago the first textile diversification dinner was held, and there was an immense interest in it. While we adopted no specific rule as to how this should be accomplished, we have awakened our people to the idea of working out a plan toward the end of cutting out inefficiency and extravagance, and rendering a service to the public, or in other words, giving them what they want and charging them for what they get.

"Could you imagine anything more chaotic than if every young man in the world wanted to marry the same girl? If all you people are going to make the same thing and force it on the public, can you imagine anything more futile? The time is coming when you must be thinking about that, and not only thinking about it, but you must put some plan in execution to prevent it. There is a great number of people that have demands, and if you are a manufacturer, put your brain to working to solve that problem, because there is plenty to do. I do not believe we are over-developed in this industry. We have the climate, the people, and other resources with which we can compete with the world, and if we are to be supreme we must go from the manufacturer to the consumer. You are going to do this; it is just a matter of how long will it take you to do it. You must put across this movement of diversification, or you will fall out of the industrial picture of the southern states. I hold no brief against the businesses which are now distributing your products, but I say to you that you must short-circuit this circuitous route between the product of your loom and that dress in the shop; if there is an unnecessary expense in there it must be eliminated. You must have some way of feeling the pulse of the market to know what they want, and make that product, and not work for six months and stock up on goods and finally sell them at any price." Mr. Lee referred to the shirt he was wearing, stating that it probably cost $4.50, and that it contained goods for which the mill received only about 75 cents. Somewhere in there, he said, there has been too much money spent on that. He also referred to the fact that the mills have sold cotton goods at such a price as to allow a higher-priced fabric to compete with it. Another thing, he declared, "you must finish the goods as far as possible at your own plants, just as they go to the retail counters, and you must establish and maintain a brand for your goods if you want to establish a market for them. I doubt if I could find ten men here who could tell me where the cotton goods they have on were made. If you have a good article, why not tell them about it; why not establish a brand and create a demand for your goods?

"You cannot keep this business going unless you know and keep closer in touch with what the people want, and to do this you have got to spend money. I am not here to criticize the various organizations that handle your goods to the customer, but if that selling house is not doing it economically, if that jobber or converter is not doing it economically, then they must give way in the name of efficiency and economy, and in the name of service, or they must put themselves in unison and cooperate. We really are studying this thing tonight on the basis of an elimination dinner, and we must work to distribute the goods so they will have real competition. There is no use in cutting labor five or ten cents a day if it is only going to make a difference of a cent and a half in the cost of a shirt."

The next speaker was Theodore H. Price, publisher of Cotton & Its Products and Commerce & Finance, New York City, who discussed "The Distribution of American-Made Cotton Fabrics." Mr. Price's address follows in part:

"I don't know much about the 'diversification' of cotton goods. I have heard a good deal about agricultural diversification of late, but, as diversification in the textile industry was new to me, I asked a New England manufacturer what it meant. His answer was, 'Diversification is all right, but for Heaven's sake tell your Southern friends not to diversify by copying *my* goods!' And then he went on to explain that the ideal diversification was creative and not imitative.

"Ignorant as I am, it seems to me that in this remark he covered about all that can be said upon the subject. Diversification to be successful must be creative. That it may be creative men of imagination must be employed, and they must be given opportunity to work under conditions that will fire and excite their imagination.

"One of the leading advertising agents of this country told me that he paid his chief 'ad' writer a salary of $100,000 a year and that in the preparation of his copy he sometimes spent a whole day looking for just one word that would give the greatest projectile power to the idea that was to be put over.

"So it must be with the creative designer. He should live where the currents of life run swiftly, where he can sense the drift of public taste or fancy, and where the excitation of competition will stimulate him to do his best. Uninformed as I am, I cannot be more specific, but it seems to me that it is from and through your selling houses or agents that you should get the most valuable ideas, and I think if I represented a cotton mill and sold its goods I would employ the best designer I could find to study the styles and make suggestions to my client.

"But I may be wrong and submit the suggestion with diffidence. General Grant once remarked that he had run across a man who succeeded in business by following an unusual method. When asked what the method was he answered, 'He attended to his own business.'

"But when it comes to making a market for the goods your creative genius has produced I am a little more at home, for I have studied the question and feel justified in asserting that the great need of the cotton textile industry today is advertising that will arouse a consumer demand.

"Your industry is one of the greatest and one of the

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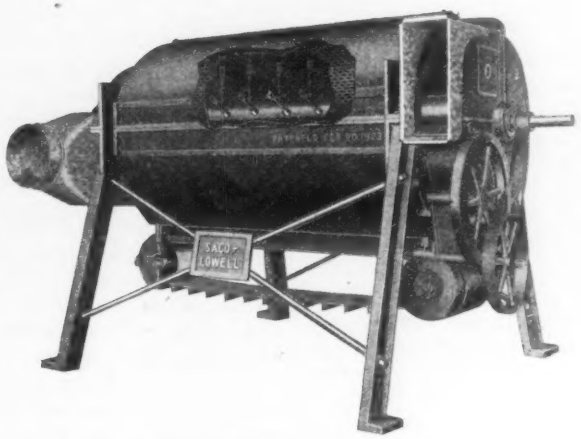

Saco-Lowell Horizontal Cleaner
(Patented)

ONE OF THESE CLEANERS

Will improve the running of every machine
in a mill as large as 40,000 spindles.

The investment is small
The yield on the investment is high
No labor is required to operate the Cleaner.

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oldest that civilization includes. In the United States alone more than 5,000,000 adults are employed in producing, manufacturing, and distributing cotton and the things made of or derived from it. Upon the average each of these 5,000,000 persons has three dependents. Here is a group of 20,000,000 people, nearly one-fifth of our population, who are directly dependent upon cotton for a livelihood. If you could bring them to a realization of this dependence, if you could, so to speak, give them a consciousness of cotton, if you could make them talk, eat, drink, and breathe cotton goods, what, think you, would be the result?

"What would be the effect if you could get the 20,000,000 Americans who derive a living from cotton to talk about or sing about it and insist upon its use in preference to Japanese silk or Australian wool?

"In so far as those who grow cotton are concerned, this has been done. As a consequence we have semi-monthly crop estimates and ginning reports and statistics without end, for which much Government money is spent because there is a cotton 'bloc' in Congress whose political fortunes depend upon their fidelity in looking after the interest of the cotton producers. But have the cotton manufacturers of the United States ever tried to promote an enthusiasm for cotton goods among their employees? I think not.

"I do know of one treasurer in New England who has attempted it. Not so long ago he was put in charge of a mill that had been unprofitable. His first step was to write all his directors to urge their families to use the sheetings and other goods their mill produced. Then he got his employees together and made it plain that they would help themselves by helping him to sell more of the cloth they were engaged in making. The mill commenced to get more orders. It was soon running full time, its stock rose 50 points in the Boston market, and only the other day it resumed dividends.

"Some years ago an Englishman, Sir Martin Conway, wrote a very interesting book on *The Crowd in Peace and War*. Let me read to you a brief passage from it.

"'An ideal that arises in the heart of an individual is like a spark struck from steel by a flint—gone in a moment unless it ignites some inflammable mass. But an ideal that is incorporated in a crowd is a burning lamp. It is only a crowd that can give continuity to the combustion.

"'A crowd can be formed in a hundred other ways than by mere physical presence in one place at the same time. Printing, the telegraph, and the various modern inventions and developments we are all familiar with, have made crowd formation possible without personal contact. What is a movement but the formation of a crowd?

"'*Fashion in clothes may be cited as an instance of the extension of crowd dominance over the individual. The crowd has always exercised dominion in this matter, but until about a century ago the power was in the hands of the local crowds and costume varied from one locality to another. Now the whole western world dresses alike, and changes in fashion spread with astonishing rapidity by the aid of the press and modern commercial organizations.*'

"And so I urge you to develop the enthusiasm of your employees for cotton. In it you have at your command a force now latent that is quite as powerful as the hydro-electric power that runs your mills, and hand in hand these two forces can be made to work the renaissance of the cotton textile industry in the United States.

"The rapid increase in the business handled by the 'chain' stores and the 'department' stores has led some to feel that the jobber may soon be archaic, but of this I am not at all sure. In 1924 Dr. Paul H. Nystrom, Director of the Retail Research Association and author of 'The Economics of Retailing,' published some interesting figures that have a bearing upon the question. He estimated the retail trade of the country in 1923 at $35,000,000,000, or about one-half of the national income. This trade he apportioned among the various lines of business as follows:

	Billions of Dollars	Per Cent of Whole
Food	15.3	44.
Clothing	7.7	22.
Furniture and furnishings	1.3	3.5
Automobiles and supplies	3.5	10.
Tobacco and products	1.7	5.
Candy and beverages	1.5	4.2
Jewelry and musical instruments	1.	2.8
Miscellaneous	3.	8.5
	35.0	100.0

He estimates that of this trade

Independent retail stores	sold	66.75%
Department stores	sold	16.
Chain stores	sold	8.
Mail order houses	sold	4.6
Commissary stores	sold	4.5
House to house canvassers	sold	.13
Co-operative stores	sold	.02
		100.00

"Dr. Nystrom is a statistician of repute and if his figures are anywhere near correct we are still a long way from the obsolescence of the jobber or the independent retailer. That some of the department stores and chain stores already buy direct from the manufacturer is a fact that is known to every one who knows anything of the subject. But trade usages are difficult to change, and when change is imperative they generally change automatically.

"Therefore I won't attempt to enter a field where angels fear to tread, and prefer to leave the problem of selling cotton goods in the hands of the manufacturers themselves. They know a lot more about it than I do, and, since circumstances alter cases, I rather think that there are about as many problems as there are cotton mills.

"There is, however, just one other phase of the many-sided subject assigned to me to which I would like to advert in closing. It is the exorbitant prices demanded by retailers for cotton goods that are attractive and have become popular. The theory seems to be that the women have become accustomed to the scale of prices at which silks are selling and that they will pay just as much for cotton goods that take their fancy. The result is that cotton goods are deprived of the advantage that their comparative cheapness ought to give them and that the purchaser takes silk or rayon because there is little or no economy in buying cotton fabrics.

"Here, it seems to me, you have a great opportunity by advertising the stores at which your goods are to be had and the prices at which they ought to be sold. I doubt whether you have any legal right to prevent the retailer from asking more than a certain maximum for your goods, but by advertising the price at which they ought to be sold and the names of the stores at which they can be obtained at that figure you would speedily put an end to the profiteering that has already injured your business and greatly increase your popularity with the retailers who were content to accept a reasonable profit on the goods with which you supply them."

W. J. Vereen, of Moultrie, Ga., president of the Poulan (Ga.) Cotton Mills, vice-president of the Moultrie (Ga.) Cotton Mills, and president of the American Cotton Manu-

(*Continued on page* 83.)

Aluminum Paint Brings True Upkeep Economy

—One Coat Completes Interior Jobs

A single coat of Aluminum Paint completely "hides" the original wall-color. It saves the labor and material costs of "under-coats" and "finishing-coats" because it "leafs."

* * *

ALUMINUM PAINT instantly improves lighting and sanitation. Aluminum Powder—the paint pigment—consists of thin opaque flakes of pure metallic aluminum. These "leaf" together when the Paint is applied, giving a coat that is smooth, even and continuous.

The Aluminum Paint coat lasts longer and stays clean longer because of "leafing."

One coat of Aluminum Paint, covering 500-700 square feet per gallon, "hides" the original wall-color as completely as two or three coats of ordinary paint.

Compare the cost of the completed Aluminum Paint job with the cost of jobs done with ordinary paints.

Consider the manifold economies of Aluminum Paint. One coat for inside jobs—one coat "hiding." Lasts longer. Stays clean longer. Reflects good working light that is kind to operatives' eyes.

Yet Aluminum Paint costs no more than less efficient wall-paints. It is the way to true upkeep economy.

Get the complete facts about Aluminum Paint and "leafing" before you award your next painting contract.

Our booklet—"Aluminum Paint"—contains all the information you need. We will be glad to send you a copy upon request.

Brief Facts about Aluminum Paint

- —Consists of Aluminum Powder mixed with a suitable vehicle of oil or varnish.
- —Powder made of pure metallic aluminum flakes.
- —Flakes "leaf" together, forming rustproof, waterproof, weatherproof coating.
- —500-700 square feet coverage per gallon.
- —One coat completely hides original color of surface.
- —Can be sprayed or brushed on.
- —Aluminum Paint is the ideal super-durable protective paint.

Aluminum Paint

Aluminum Company *of* America
2401 Oliver Building
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Offices in Seventeen Principal American Cities

ALUMINUM IN EVERY COMMERCIAL FORM

What the Southern Mills are Doing

The Atlanta Cotton Products Company, of Atlanta, Ga., which recently acquired the Marietta Cotton Mills plant at Marietta, Ga., will manufacture carpet and insulating yarns. P. A. Ammons is secretary-treasurer, W. C. Clark is general manager, and C. E. Bailey, formerly of the Piedmont Cotton Mills, Egan, Ga., has been appointed superintendent.

Highland Mills, Griffin, Ga., started operation during October. This is the eighth cotton mill in Griffin, which also has two bleacheries and two hosiery mills. W. F. Ingram is president of the Highland Mills, James M. Brawner is vice-president, and George C. Imes, formerly with the Georgia-Kincaid Mills, of Griffin, is superintendent.

The office of the Georgia-Kincaid Mills, Griffin, Ga., has been moved from East Griffin to the new office building at the Lowell Bleachery South, at Experiment, one mile from Griffin. The machinery for the company's new dye plant is arriving, and the company is also installing new looms at the No. 3 Mill.

The Martha Washington Inn, LaGrange, Ga., operated by the Callaway mill interests, is being remodeled and will be used as an administration building for the Callaway mills. A testing laboratory and cotton grading department will also be included in this building, it is announced.

It is reported that the Unity Cotton Mills and the Hillside Cotton Mills, LaGrange, Ga., will be electrified, and that Robert & Company, Atlanta, Ga., are the engineers.

The Tifton Cotton Mills, Tifton, Ga., are building a new addition to house 5,000 additional spindles, and have purchased Fairbanks-Morse ball bearing motors for driving the spinning frames. Robert & Company, Atlanta, Ga., are the architects on this expansion work.

Strowd-Holcombe Cotton Mills Company, Birmingham, Ala., has been organized, and will install a manufacturing plant in the building formerly occupied by the Preston Motor Company near Birmingham. It is understood that 10,000 spindles, with complementary looms, will be placed in operation in the production of sheetings and similar fabrics. Houses for operatives will be erected. Mrs. T. C. Thompson, president of the Buck Creek Mills, at Siluria, Ala.; W. F. Strowd, vice-president of that mill; H. H. Holcombe, vice-president of the Holcombe Textile Equipment Company, of Birmingham, and Dr. J. A. Hines, of Siluria, Ala., are the interests in the new corporation.

Report from Florence, Ala., is to the effect that the Chamber of Commerce industrial committee is interested in establishing a new cotton mill at that place.

The California Cotton Mill Company, Oakland, California, has purchased the Sunset Textile Mills at Selma, Ala., and the Canebrake Cotton Mill, Uniontown, Ala.

Piedmont Manufacturing Company, Piedmont, S. C., is repainting all of the houses in the mill village.

Hamilton-Carhartt Mill No. 2, at Rock Hill, S. C., has been sold to a corporation composed largely of Rock Hill men, it is announced. The new corporation is headed by York Wilson, formerly connected with the Lancaster Cotton Mills, Lancaster, S. C.

The new building at the Kenneth Cotton Mills, Walhalla, S. C., is under construction. It will be used as a packing and shipping department. It will be an addition 40 x 40 feet, one story. J. E. Sirrine & Company, Greenville, S. C., are the engineers.

A new company has been organized to take over the physical property of the Spartanburg County Mills, at Camp Wadsworth, Spartanburg, S. C. B. C. Fiske, president of the Fiske-Carter Construction Company, is the president of the new organization. The plant, which has 11,392 spindles, will manufacture yarns, and it is possible that looms will be installed later. F. A. Bearden, of Spartanburg, is secretary. Arthur M. Hamilton, superintendent of the Chesnee Mills, Chesnee, S. C., will supervise the operation of the plant as superintendent, dividing his time between the two mills. The directors are B. C. Fiske, H. L. Bomar, John A. Leathers and Frank Hodges, of Spartanburg, and George Norwood, of Greenville.

Plans for the complete electrification of Mill No. 2, together with the installation of a new lighting system, are being carried out by the Clinton Cotton Mills, Clinton, S. C., which have commissioned Lockwood, Greene & Co., Boston and Atlanta, as engineers on this work.

The contract for the erection of the Piedmont Plush Mills, Greenville, S. C., has been awarded to Potter & Shackleford, of Greenville. The buildings will include a one-story weave shed, 180x100 feet; a one-story dye house, 60x35 feet, and a boiler room. Clifton Corley is vice-president and general manager.

D. E. Converse Company, Glendale, S. C., are preparing to install electric power in one of their mills. Lockwood, Greene & Company, Charlotte, N. C. are the engineers.

Columbus Cotton Mills, Inc., Columbus, N. C., has been organized, and a mill will be erected. Among those interested are W. T. Hammette of Tryon; F. L. N. Bacon, president of the Southern Mercerizing Company, Tryon; F. W. Blanton, of Columbus, and William P. Cargill, of Cherryville, who will be a director and the superintendent of the plant.

Highland Cotton Mills, High Point, N. C., are changing their equipment to make 40s to 60s ply yarns for mercerizing. They plan to build a two-story addition, 200x67 feet, to take care of the new equipment which will be installed.

Love Cotton Mills, King's Creek, N. C., plan to start construction on a new mill in the early Spring. A. W. Love is president.

P. M. Keller and associates have organized the Victoria Cotton Mills Company, Victoria, Texas, and a plant will be erected. Mr. Keller, who, until recently, was manager of the Belton Yarn Mills, at Belton, Texas, will be the manager of the new plant and will supervise its construction.

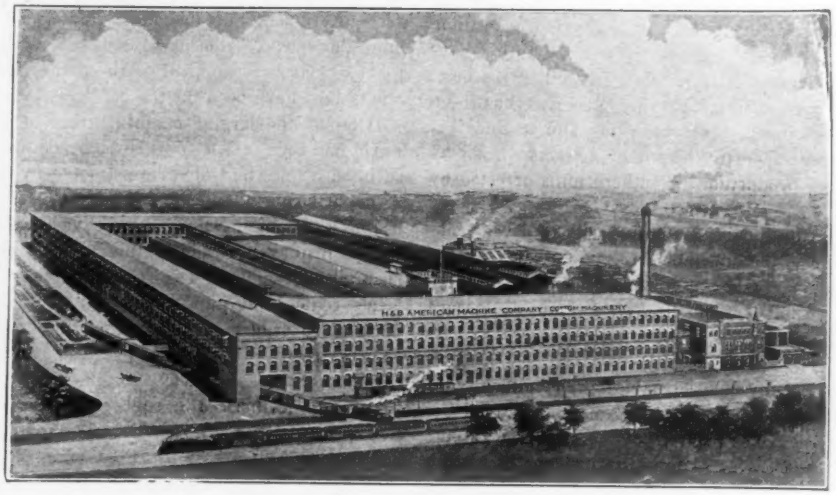
The addition to the Rhyne-Houser Manufacturing Company, Cherryville, N. C., will be two stories, 128x75 feet, and will contain 5,000 spindles, it is reported.

It is understood that the Morgan Cotton Mills, Laurel Hill, N. C., will expend $100,000 in improvement to their tire fabric plant.

The Alpine Woolen Mills, Mt. Airy, N. C., have been purchased by the Miltex Woolen Mills, a new concern organized by G. G. Slaughter, of Charlotte, and the Sullivan Company, of Anderson, S. C. The output will be increased, and slasher, roller and clearer cloth will be manufactured.

Hampton Cotton Mills, Hampton, Ga., have been purchased by the Ensign Cotton Mills, Forsyth, Ga.

COTTON MACHINERY



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H. & B. AMERICAN MACHINE CO.

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The New England Mill Situation.

The meeting of the National Association of Cotton Manufacturers at Boston, October 14 and 15, proved unusually interesting because of the attention given to merchandising and styling; and to an open discussion of general topics that are to be dealt with in full in the association reports but were suppressed by agreement among trade and other papers until publication of an official character is made.

The meeting demonstrated what has been said for some months past, that New England has overcome its long fit of depression growing out of excessive taxation, restrictive legislation, and other factors related to southern competition. These things are still in existence but manufacturers have decided to make the best of them while continuing the business of producing textiles. Further progress has been made toward restoring normal production and to some extent this has been helped by the firmer markets caused by the curtailment of production in southern mills affected by drought.

Activity in textiles in the section is really of a very substantial character as the silk mills are running in full, the large worsted mills are having the best business in three or four years, the finishing plants are beginning to secure more business, and the machine shops are slowly gathering in more orders.

There are not many labor troubles. The difficulty in Willimantic, Conn., in the mills of the American Thread Co. has ceased to affect the production of those mills, but some of the strikers have been continuing life in tents, as a form of protest against what they term the injustice of a wage reduction. There have been some minor troubles but on the whole labor difficulties have ceased to occupy any large part of manufacturers' thoughts.

The cotton goods business of New England is really attracting less attention than the work being accomplished in rayon, silk and worsteds. Not that the cotton mill business is being abandoned. It is being changed to meet the conditions whereby volume production of staples has become unprofitable. Changes of styles have become so much a part of the business that merchandising has come to be one of the greatest factors in the prosperity of the mills.

Mill profits have been irregular even though operations have been increasing. A financial report of the Pepperell mills of Biddeford, Me., has aroused much comment as the losses shown for the past year ran over $400,000. An explanation is offered that a change in the treasurership of the concern recently took place and the view is expressed that inventories were cut sharply, as often happens when a new financial broom is used. As a matter of fact the mills of over 6,000 looms are running in full and have sold sheets and pillow cases freely, and have brought out many new goods. Moreover, the concern has now come into controlling possession of the Lewiston Bleachery in which it held a minor interest with other Maine mills for many years. All of its products will be finished there and the bleachery will establish a New York office where outside bleaching work will be booked.

Another large unit of cotton mill production where reorganization is still incomplete is the B. B. & R. Knight properties of Rhode Island. The bondholders are now operating the plants, seven of which are running. It is not known just when it will be decided what shall be done to restore these plants to a satisfactory financial condition.

In connection with this matter it was announced during the month that a corporation had been formed to handle Hermetite, a rubberizing process that has been applied for a year or two in the Pontiac bleachery of the Knight mills, and has now been perfected and is being sold through Converse & Company, the selling agency of the Knight mills.

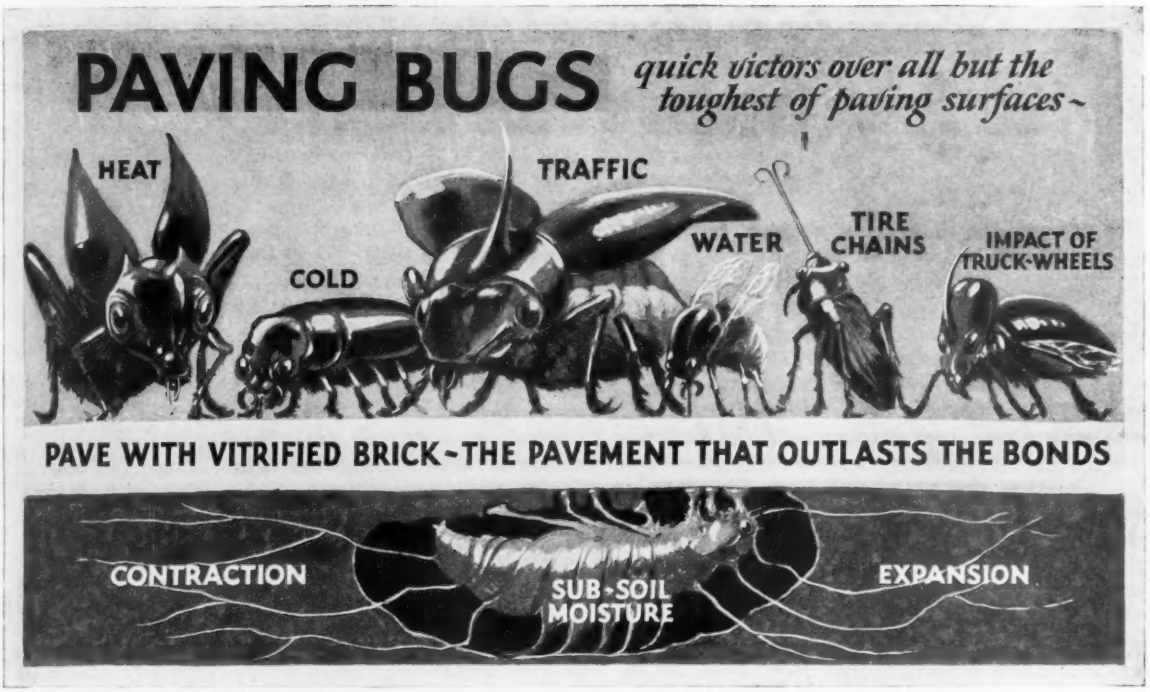
This new product is one of real accomplishment in the textile field. When the McMillan expedition started for the North Pole under the direction of the National Geographic Society its tentings and wrappings included cloths that had been treated by this new process recommended by one of the large New York concerns that outfit such expeditions. The government bureaus undertook several tests to determine the worth of the new cloths offered and were so impressed that they adopted them to the exclusion of many others that have been on the markets for years.

One of the largest manufacturers of raincoats in the world has been making coats of the various materials wanted in such lines that have been treated by this new process. A department in one of the largest Fifth Avenue stores has been opened in which the wide variety of the new products is displayed regularly for sale. Rubber sheeting for hospital and domestic use, aprons, bathing caps, ladies' and men's coats, wall paper, embossed cloths, aeroplane and dirigible coverings, etc., suggest some of many uses to which fabrics treated by the new process are being put. Silk, canvas, very sheer or heavy cotton, and in fact any fabrics that can be leatherized or rubberized, can be treated by this new process successfully. For the present the work will continue to be done at the Pontiac works, but it appears that certain results have been attained that make it essential to make provision for a much larger field than the inventors of the new process in textiles had ever visualized.

The feature of the manufacturers' meeting in Boston was a style show originated by the ladies who cooperated a year ago in making one of the association meetings very successful. They secured the assistance of trained designers, artists, and dress makers, and developed a long list of dresses of cotton, or cotton mixtures, for which prizes were awarded, and which will be displayed hereafter in different places throughout the country.

The show was not marked by any radical departures but had the effect of awakening many manufacturers to the possibilities of plants they have operated for years. It seems to have been determined in New England that if the mills are to be operated profitably it is necessary that there shall be an entirely new form of cooperation in selling the products between the manufacturers and those who represent them in the selling markets. Stocks of goods deliverable promptly on order, must be carried, and the risk of style and color changes must be accepted as part of the penalty of profitable production, to meet the hand to mouth buying methods that have become almost universal in distributing channels in this country.

The new season of 1926 promises to be another large printed goods year, this being established already by the substantial orders taken by the large corporation printers, and by the immense amount of advance engraving having been ordered of the job finishers. The Pacific, American, Arnold, Windsor and Algonquin companies are all very busy, and within the past month the job printers have been securing more orders than for many months. The products being used are rayon mixtures, crepes, sateens, pongees, percales, and cotton and silk mixtures largely. The print



THE annual cost of a pavement is its first cost *plus* interest on its bonds *plus* every later expenditure for upkeep and repairs, *divided* by the number of its useful years.

From the instant it is laid, a pavement is subject to destructive forces. The jolt of heavy trucks tend to crack and pulverize brittle materials. Tire chains gnaw into soft surfaces. Contraction and expansion attempt to throw the riding surface into hummocks or to rend and shatter rigid construction. Freezing and thawing of sub-soil moisture racks any rigid pavement surface. Surface seepage, a milder but ceaseless enemy, accelerates decay of short-lived materials.

The combination of these forces wreck some surfaces in a few years. The hand of man, cutting trenches for underground installations, hastens this deterioration, unless the surfacing material can be lifted and replaced without requiring new material.

Only one pavement, at reasonable first cost, meets every modern condition—*the asphalt-filled vitrified brick pavement.*

VITRIFIED
Brick
PAVEMENTS
OUTLAST THE BONDS

Its fire-hardened surface resists traffic wear indefinitely—scores of brick pavements are well beyond the 30-year mark. The elastic asphalt joint withstands the bending, jolting and heaving actions of heavy loads, temperature changes and sub-soil freezing. Cross-trenches are economically cut because the asphalt joint, though a tight water-seal against seepage, keeps each brick a quickly removable unit that comes out and goes back into place with virtually 100% salvage.

To cap every other advantage, should the surface of a brick street or road, due to foundation failures, become uneven after a quarter-century or more of service, the original brick can be relaid and a smooth, renewed pavement secured at a small fraction of the first cost of any other known pavement!

Moral—advocate vitrified brick for pavements in your community.

I would be glad to receive a free copy of book, "Brick Roads Outlast the Bonds," containing facts and figures on paving costs taken from public records.

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City _____ *State* _____

c

NATIONAL PAVING BRICK MANUFACTURERS ASSOCIATION, ENGINEERS BLDG., CLEVELAND, OHIO

cloth output in printed form is of fair volume but not proportionally as large as in other years, most of the works being called upon to print the finer fabrics or the novelty mixtures.

There is a great variety of rayon fabrics being made in New England from the finest jacquards, down to the popular priced gingham weaves now so generally on the looms of the big gingham manufacturers. The success met with in printing some of the new rayon cloths has been very great yet buyers have ordered the all-cotton goods more freely in a large way for advance Spring delivery, than they have the mixed materials. This may be due to questions of salability due to the fabrics themselves or to questions of the permanency of styles.

One of the recent features of New England mill gossip is the lessened talk heard of southern competition. The fact is that New England continues to invest largely in the South the latest instance being the purchase of the Brogon mills by the Appleton Company of Lowell, Mass., and the decision to spend $1,000,000 in additions and improvements there. The Lowell plant will eventually be changed over for the production of high textile novelties, the first of these having already been shown in the form of rayon mixtures for which many of the yarns were purchased, not spun. The new plant of the American Printing Company, to be known as the Borden Mills of Kingsport, Tenn., will soon be shipping goods regularly to Fall River, Mass., for processing, and gradually but steadily many famous old New England cotton branded lines are being made in southern plants.

With facts of this sort before them, New England people have come to look upon southern competition as they formerly looked upon competition with England, something to be faced as a fact of trade, and not a fact of all pervading importance in labor or social discontent. This is exactly what was predicted would happen, by some men in the southern and northern textile trades, and with investments in both sections they have ceased to look upon progress in either, as detrimental to their interests.

New England manufacturers have undoubtedly been greatly cheered by the prospect of an abundant cotton yield. But they are not tieing their faith in the future to cotton alone to be used in the cotton mills. They feel that with cotton available at lower prices rayon nor silk will not continue to be such a disturbing element in cotton mill progress. They are fully convinced that staple cotton goods will be wanted in larger volume because cotton will make it possible to produce those goods cheaper. Eventually, they expect that the restoration of old comparative values will bring back the bleached cotton, the gingham gown, and the other serviceable things of cotton now discarded for less utilitarian rayons and other things.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, October 15th, 1925.

Generous September rains in the Southwest, and the inactivity of weevil in the central and eastern portions of the belt, are reflected in much larger crop estimates, and a much lower level of prices, than prevailed one month ago.

In our previous review, we stated, in conclusion, that owing to the breaking of the drouth in the Southwest by heavy rains in Arkansas, Oklahoma and the northern half of Texas, as well as the central portion of the belt, it made for better crop results eventually than promised at that time, when indications were for a production of only 13,740,000 bales as of September 1st, unless the cotton region be visited by an early killing frost.

Returns to the government, as of September 16th, published September 23rd, pointed to a yield of 13,931,000 bales. Subsequently, later returns to the government, as of October 1st, published October 8th, surprised the trade by indicating a yield of 14,759,000 bales, showing an increase in the prospective production, for month of September, of about 1,000,000 bales, causing the market to decline more than three cents during the past month.

Meanwhile Washington advices from foreign cotton producing countries denote prospects for larger crops.

For the first time since 1914, as the indicated yield is larger than for any year since that date, or since the beginning of the world war, the trade has a promise of being favored with an ample supply of raw cotton, not only of American but of foreign growths, perhaps something of a surplus, unless consumption should be larger than expected.

Spinners the world over are looking forward to an active season, and as the price of the raw material is cheaper than it has been for several years, the outlook is bright for the textile industry on both sides of the Atlantic, as well as in the Orient.

That the textile industry in the United States is in a flourishing condition, especially in the South, is illustrated by Census Bureau returns for the month of September, which showed as follows:

United States—	This Season Bales	Last Season Bales
Consumption, Sept., inc. linters....	553,000	489,000
Consumption, 2 mo., inc. linters....	1,066,000	891,000
Mill stocks, Sept. 30.....	866,000	516,000
Stocks in public storage, Sept. 30..	3,138,000	2,067,000
Total stock in U. S. Sept. 30..	4,004,000	2,582,000

This is a remarkably good showing considering recent persistent reports of the necessity of Southern mills to curtail production for want of sufficient water power in the South Atlantic states, due to the recent drouth.

Compared with last year, southern mills consumed of lint cotton during September 330,000 bales vs. 305,000, the lack of water power notwithstanding, while New England mills consumed 125,000 against 110,000, other states 28,000 vs. 23,000.

On the basis of the latest of government crop forecasts—14,759,000 bales, the indicated season's supply of American raw cotton is as follows:

Bales—	This Year	Last Year
World's carry-over, Aug. 1.....	2,880,000	2,319,000
Actual growth, inc. linters, est.....	15,792,000	14,808,000
Season's indicated supply, est.....	18,672,000	17,127,000
World's consumption, if.....	15,000,000	14,247,000
World's carry-over July 31 next, est.	3,672,000	2,880,000

As to the future course of values, much will likely depend on future weather conditions, particularly as to the date of killing frost, as well as to the future progress of the crop.

The possibilities of this year's crop can be realized when the heavy ginnings to October 1st—7,102,000 bales vs. 4,528,000 last year—are taken into consideration with the fact that after October 1st last year 9,100,000 bales were ginned.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

S. B. SCHWARTZ has been promoted to the position of superintendent at the Maginnis Cotton Mills, New Orleans, La., succeeding C. E. Davis, resigned.

J. A. ADAMS has become superintendent of the Texas Cotton Mills, McKinney, Texas, succeeding J. C. Cosby, who has resigned to accept a position with the Hunter Manufacturing & Commission Company, and will be located at Greensboro, N. C.

JOHN CROSBY has succeeded J. L. Nelson as overseer of weaving at the Texas Cotton Mills, McKinney, Texas. Mr. Nelson has accepted a position with the Sand Springs Cotton Mills, Sand Springs, Oklahoma.

J. T. CHAPPELL, for several years overseer of weaving at the Dallas Cotton Mills, Dallas, Texas, has accepted a similar position at the Sherman Manufacturing Company, Sherman, Texas, succeeding J. N. Ard, who has returned to Columbus, Ga.

C. E. ELROD has been promoted from second hand to overseer of weaving at the Dallas Cotton Mills, Dallas, Texas, succeeding Mr. Chappell.

NEWTON G. HARDIE has become assistant superintendent of the Stonecutter Mills, Spindale, N. C. He is a graduate of the Lowell Textile School and has lately been connected with the Judson Mills, Greenville, S. C., as designer.

HAROLD H. HUGHES has been made overseer of finishing at the Swift Manufacturing Company, Columbus, Ga., succeeding W. C. Gibson, who recently took a position with the Exposition Cotton Mills, Atlanta, Ga., as overseer of the cloth room.

J. E. THOMPSON has become cloth room overseer at the Buffalo, S. C., plant of the Union-Buffalo Mills Company. He was formerly at the Hartwell Mills No. 2, Toccoa, Ga., where he is being succeeded by Fred Burton, from the Hartwell, Ga., plant.

D. F. CLARK has resigned as assistant superintendent and overseer of carding at the Columbus Manufacturing Company, Columbus, Ga.

J. E. BATSON, formerly overseer of carding at the Meritas Mills, Columbus, Ga., has succeeded Mr. Clark in a similar position at the Columbus Manufacturing Company.

HARRY P. HUNTER, superintendent of the Equinox Mills, Anderson, S. C., has been also appointed superintendent of the Gluck Mills, Anderson. Mr. Hunter has assumed his new duties and will divide his time between the Gluck and Equinox mills. J. R. Sweetenberg has been made assistant superintendent at the Gluck Mills.

E. C. GOODWIN, formerly with the Loray Mill of the Manville-Jenckes Company, Gastonia, N. C., has accepted the position of overseer of night carding at the Rex Spinning Company, Gastonia, N. C.

J. N. BADGER has resigned as superintendent of the Dunean Mills, Greenville, S. C.

ARTHUR TOUSIGNANT has resigned as superintendent of the Monaghan plant of the Victor-Monaghan Company, Greenville, S. C., and has become assistant superintendent of the Aiken and Seminole Mills, at Bath, S. C.

C. W. MCSWAIN, formerly at the textile school at Clemson College, and more recently assistant southern manager for the Steel Heddle Manufacturing Company, Greenville, S. C., has been made assistant general manager of the Victor-Monaghan Company, with headquarters at Greenville, it is announced.

B. R. DICKSON, superintendent of the Greenwood Cotton Mills, Greenwood, S. C., has been transferred to the position of superintendent of the Ninety-Six Cotton Mills, Ninety-Six, S. C., succeeding C. W. Petit, resigned.

J. G. MCNEIL has been promoted to the superintendency of the Greenwood Cotton Mills, Greenwood, S. C. He has been overseer of weaving there for a number of years.

J. W. WHITE, for five years overseer of weaving and slashing at the Lincoln Mills of Alabama, Huntsville, Ala., has accepted a position with the Columbus Manufacturing Company, Columbus, Ga.

J. L. RHINEHARDT has accepted the position of overseer of carding and spinning and silk room at the Dover Mills Company, Shelby, N. C.

H. G. MCFALLS, superintendent of the Catawba Cotton Mills, Newton, N. C., and father of J. A. McFalls, superintendent of the Ranlo Manufacturing Company, Ranlo, N. C., died recently at his home at the age of 70 years.

E. H. POE is overseer of carding at the Tellico Plains Cotton Mills, Tellico Plains, Tenn., and L. K. Thomas is overseer of spinning. B. W. Bingham is manager.

W. V. JONES has resigned as overseer of winding spooling, warping and finishing at the Norcott Mills, Concord, N. C., to take charge of carding and spinning at Anchor Mills, Huntersville, N. C.

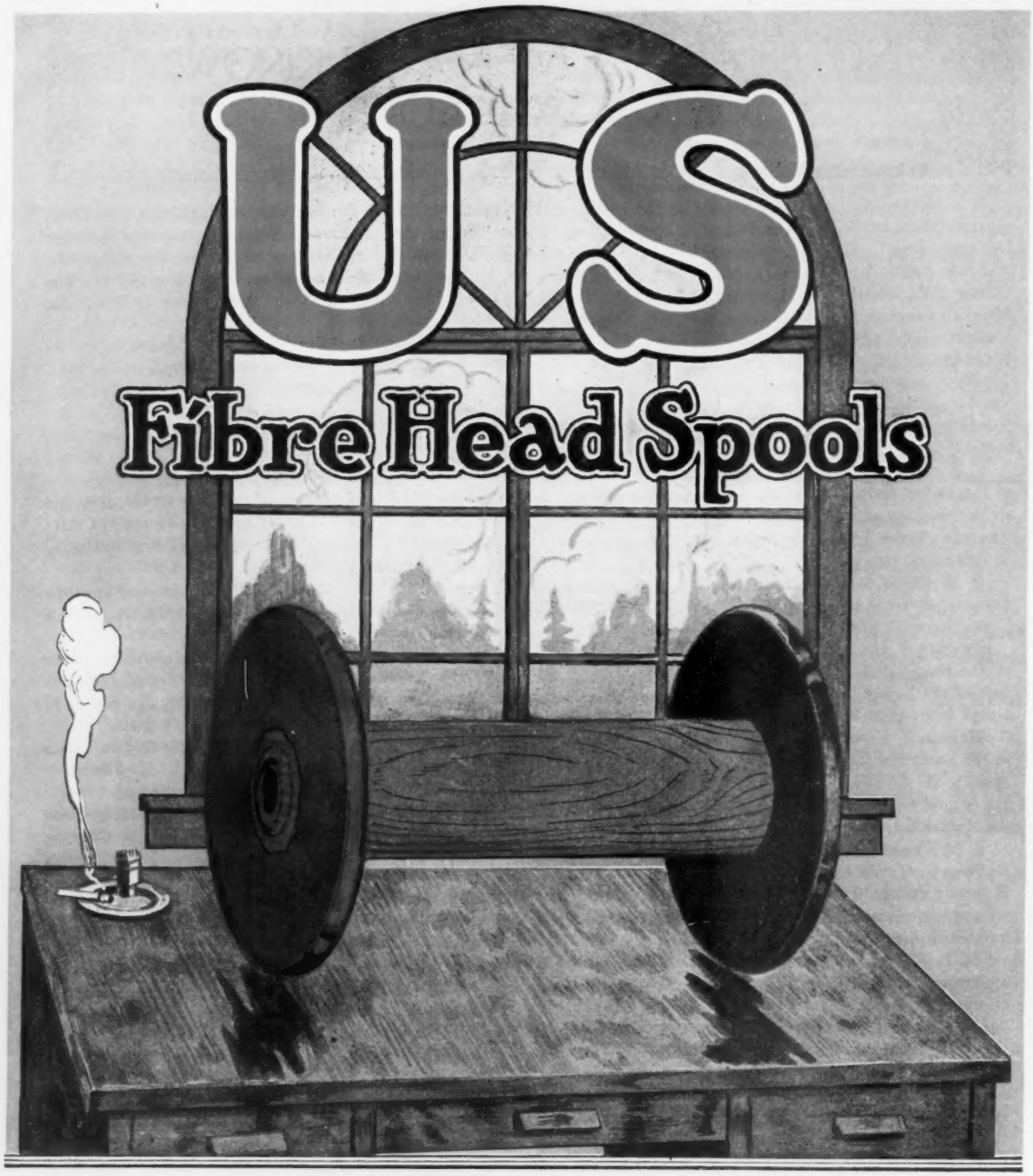
N. BARNARD MURPHY, who has been superintendent of Mill No. 4, Pelzer Manufacturing Company, Pelzer, S. C., has been promoted to the superintendency of Mills Nos. 1, 2 and 3, also. Donald Brigham has resigned as superintendent of Mills Nos. 1, 2 and 3, and is now connected with the Aspinook Company, Jewett City, Conn.

H. A. LIGON, president of the Arcadia Mills, Arcadia, S. C., died recently following an operation.

LELAND F. ROSS has succeeded Clifton D. Park as sales engineer for the Parks Cramer Company, humidifier manufacturers, traveling New York, New Jersey, Pennsylvania and the central states. Mr. Ross is already well know in the textile trade of Vermont and central New York State.

GEORGE E. SPOFFORD, formerly vice-president, has been elected president of the Langley, Aiken and Seminole Mills, and the Anderson (S. C.) Cotton Mills, succeeding W. C. Langley, who now is chairman of the board. Mr. Spofford's New York office will be located at 57 Worth St., as formerly.

ROBERT M. MILLER, of Charlotte, died suddenly at Atlantic City on October 11 at 69 years of age. He was for years a prominent southern cotton manufacturer, having been at one time president of the American Cotton Manufacturers' Association, but had retired from active business some years ago. He organized and built the Elizabeth Mills, at Charlotte.



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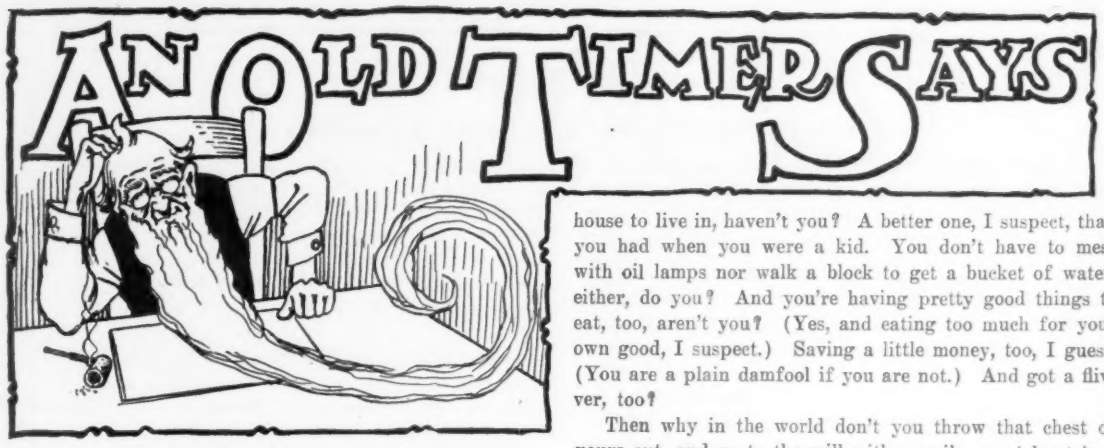

The master key to that bigger job, to health and prosperity, is to be master of yourself. Darn few people are.

• • •

There are very few people who really know what it is possible for a human being to accomplish. Why not fool yourself by trying real hard to prepare yourself for promotion?

• • •

Most anyone knows that the success of an army depends upon the cooperation of all its units, and most overseers know that cooperation means the success of any mill—but they do not do enough of it to keep in practice.

• • •

Why wait until January 1st to make that resolution to begin systematic night study to improve your mind? Start tonight!

There is one *sure* way to get a bigger job.

There is one *sure* way to be successful in whatever job you hold.

Without it you may as well hang up the sponge and

decide to just dry up on the job you now hold.

With it you are just as sure to progress as day is certain to follow night.

It is *Knowledge.*

And the strange fact about it is that just anyone who really wants knowledge can get it.

Then why in the——(Well, you just answer for yourself. The Editor would not print what I want to say, anyway.)

• • •

If the average overseer or superintendent would stop to think how happy he should be for the things he has been blessed with in this good old world of ours, he would not be such a pessimist and so blamed disagreeable to the people he works with. Just think: You got a pretty good house to live in, haven't you? A better one, I suspect, than you had when you were a kid. You don't have to mess with oil lamps nor walk a block to get a bucket of water, either, do you? And you're having pretty good things to eat, too, aren't you? (Yes, and eating too much for your own good, I suspect.) Saving a little money, too, I guess. (You are a plain damfool if you are not.) And got a flivver, too?

Then why in the world don't you throw that chest of yours out, and go to the mill with a smile, or at least in a good humor. Man, you do not realize how good this old world has been to you!

• • •

Most overseers and superintendents fall down on the job because they will not run their jobs as they would tell another fellow how to run it. What kind of a world is this, anyway?

Don't you know just plenty of overseers and superintendents who haven't any more ability than you have, who

are just beating the dickens out of you? What's the matter, partner?

"Old-Timer" has explained the answer to that question several times in the last two years. Better go back and look up some of those old articles.

• • •

Most any overseer or superintendent can work out of a "hole," but it takes a man above the average to see the "hole" before there is any "hole."

• • •

I happened to be standing the other day where I could see a fixer tying on a warp. His movements seemed to attract me. I did not know why. I moved up a little closer. He was not working fast, but he made every move count. Before I realized it he had his warp tied on and only two or three threads to draw in, and the loom was running. I remarked to my friend, "That fixer is as much of an artist in his line as any of the fine painters or any other kind of an artist." So it is with some overseers and superintendents. They just seem to get things done so easily. While others "rare and rip and cuss" and get nothing done. To which class do you belong, brother?

• • •

The best rule I have ever found to obtain a good night's rest: Work like the devil.

Order

A Text for Every Business Executive

"What comfort, what strength, what economy there is in order—material order, intellectual order, moral order. To know where one is going and what one wishes—this is order; to keep one's word and one's engagements—again order; to have everything ready under one's hand, to be able to dispose of all one's forces, and to have all one's means of whatever kind under command—still order; to discipline one's habits, one's effort, one's wishes; to organize one's life, to distribute one's time, to take the measure of one's duties and make one's rights respected; to employ one's capital and resources, one's talent and one's chances profitably—all this belongs to and is included in the word order. Order means light and peace, inward liberty and free command over one's self; order is power. Aesthetic and moral beauty consist, the first in a true perception of order, and the second in submission to it, and in the realization of it, by, in, and around one's self. Order is man's greatest need and his true well-being."

As true today as when Henri Amiel, the great Swiss philosopher, wrote it for his Journal Intime, seventy years ago!

Order is the greatest need of business. It is the slogan, and the inspiration, of every progressive accountant. To establish it in all departments is to set the scene for assured success.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this dapartment unless so endorsed. This department is open to all.

A Card Difficulty for Solution.

EDITOR COTTON:

I have an old Whitin card which is giving me some trouble in that it rolls the cotton up into small rolls about the size of your finger and throws them out between the arch and cylinder. I cannot seem to find the trouble, and if your readers will give me a little light on the matter I will certainly appreciate it. C. B. T. (S. C.)

Irregular Roving Frame Tension.

EDITOR COTTON:

Thank you for the several replies to my question on irregular tension on roving frames, which originally appeared in the June issue. I notice answers are still coming in, and I appreciate the help these fellows have given. However, I had tried all of the suggestions except the one that "T. A. D. (Ga.)" offered, and I was thinking of trying that before I asked the question, but wanted to see if anyone else had done it, as it is a very costly change to make and still harder to "unchange."

As I stated, my frames ran tight to start, then too loose, until about an hour before the doff, then too tight. They ran this way with any cone, rack, lay, tension, or compound gears I could put on, or any adjustment of the cone belt shifter. All of this proved that the trouble was not in the gearing, but in the cone itself, because if it was not in the cone taper, the tension would be constant throughout, either loose, tight, or all right, throughout the doff.

In line with "T. A. D.'s" suggestion, as mentioned, I took some regular belt cement and print cloth and put a two-inch strip around the large end of the bottom cone, and put on more cement and covered that two-inch strip with one two and one-half inches wide, and then covered that with a three-inch strip, etc., making each strip one-half inch wider than the preceding strip, up to nine, then I increased the width of the strip by one inch, making the last one twenty-one inches wide, starting each layer flush with the flange at the large end of the bottom cone, and completely covering the preceding strip so that when finished, only one layer showed, covering twenty-one inches from the edge of the larger end toward the small end.

Then of course I had to change a few gears, tension, lay gear, etc., and the result was a constant and even tension throughout, never taking up or letting off. Dog days did not affect my work any more after that. Before I covered those cones my work was running so tough the spinning room was waiting on roving, and the weave room was waiting on warps, and of course our production was down and our cost was up. Within three weeks after I started covering the cones, and before I got three-fourths of them finished, the spinning and weaving departments were stocked up and every speeder bobbin I had was filled and stacked in the bin.

My frames, you recall, are old-model Woonsocket and Pettee makes. If anyone with old model frames is having this trouble, I recommend he cover one cone as I have described, and see if the result is not worth the trouble.

G. D. S. (S. C.)

The Cause of the Bunchy Yarn.

EDITOR COTTON:

I note the question of "Contributor No. 4209" in COTTON regarding bunches in his twisted yarn that do not appear in the single yarn, and that he uses, on his spooler, a tension rod covered with flannel.

To my mind, and basing my reply upon experience, this flannel-covered tension rod is causing his trouble, and he will not eliminate it until he gets rid of this flannel covering. I know from my own experience that the yarn will cut through this flannel and the lint caused thereby will catch on the yarn and make these bunches. My suggestion to him would be to put on some tension device and do away with this flannel. The tension I use consists of two discs with a spring by which the tension can be regulated. It is simple and foolproof. Furthermore, in addition to curing this trouble, the right kind of tension will allow "Contributor No. 4209" to put ten per cent more yarn on his package on account of the even tension. He can make an absolutely perfect cone that will not roll off at the end. A. R. (GA.)

EDITOR COTTON:

Replying to the question you published from "Contributor No. 4209," regarding bunches appearing in ply yarn that were not in the single yarn, will say that I ran into the same thing this year on my two-ply yarn. I found it was caused by the traveler on the twister having a cut in it. You see, it is this way, the yarn when it goes on the single spooler, passes through the guide, and lays the fibers down just like running a comb through your hair. Then when the single spools are put in the creel of the twister, the process is reversed, and the ends run down to the traveler so that the fibers lie backwards to the guide, and when they run against a nick in the traveler, it forms

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a little bunch which collects into a little lump that jumps from the traveler to the bobbin. We called in some of the traveler men, and had them submit to us travelers that would not cut. We secured a hardened bronze A5 Merrick traveler, which does not nick, and by changing every time we creel, we have overcome the trouble.

P. R. (ALA.)

Vat Colors.

EDITOR COTTON:

Thinking that perhaps a letter for the "How Other Men Manage" department on the subject of vat colors might be timely and of help to some who are not entirely familiar with this subject, will say, in the first place, that vat colors belong to the algol, indanthrene, ciba, indone and a few other colors. Vat colors on cotton goods though they are often dyed on padders, are generally dyed on the jig. The proper way to match a shade is to make a practical trial, either of the goods in question or of some other dye order that is to be dyed of a deeper shade, but the same quality of goods, so that if the shade comes out wrong the goods may be redeemed by topping up to the darker shade. The main difficulty in dyeing vat colors is to prevent oxidation and to keep the dyebath in a perfectly reduced state. The same rules as for sulphur colors holds good with vat colors, namely, evenly beamed batches of goods, short stops while the goods are still in the dye liquor, and immediate oxidation after dyeing.

No strict rules as to how much hydrosulphite and soda caustic should be used will hold good, as this depends on the amount of color used, grade of goods and the number of ends the goods may receive.

To take two extremes, a light shade that required one pound of algol paste was dyed with one pound each hydrosulphite and caustic; a deep shade that required 19½ pounds of algol color was dyed with only seven pounds of hydrosulphite and four pounds of caustic soda. The latter formula was carefully worked out with the intention of getting the best exhaustion possible with the least expenditure of chemicals. It must be remembered that excess of caustic soda and hydrosulphite retards the exhaustion of the dye.

Of all the oxidizing agents proposed and tried, sodium bichromate is the cheapest and best for all practical purposes. It is usually used with acetic acid. The temperature of the oxidizing bath should be 130 degrees to 140 degrees F. As in the case with hydrosulphite and caustic soda, no rules can be given that will hold good for different shades, but taking the same two extremes as an example, the following quantities were used:

For the light shades, 1 pound of sodium bichromate and 1½ pints of 60 per cent acetic acid; for the dark shades, 6 pounds of bichromate of soda and 7 pints of acetic acid. Usually the shades come somewhat dull after chroming. This is due partly to the bichrome itself. Light shades show this worse than dark. To remove these impurities, soaping after first washing is enough for dark and dull shades. For light and bright shades it is better to wash first in cold water, then in boiling water, and finally in a weak solution of sodium hydrosulphite, or sodium bisulphite at 150 degrees F. This last treatment brings out the original brightness of the color.

Within the past few years, a considerable number of vat dyestuffs have been introduced, which enable the dyer to obtain a great variety of shades of extraordinary fastness. It is to be noted, however, that, comparatively speaking, the vat dyestuffs, especially when used in dyeing heavy shades, are expensive; these shades vary considerably also in fastness, and should be tested as to their resistance to certain elements before their use.

Moreover, the vat dyestuffs are not all alike, some of them require more soda than others; some must be used in an alkaline bath and some in a neutral or nearly neutral bath, and it is best for the dyer to follow the instructions of the maker in this respect. For instance, the ciba dyestuffs belong to the indigo series of dyestuffs and require to be neutral, while the cibanone dyestuffs belong to the anthraquinone series and may be used alkaline. The two classes of dyestuffs may be used in combination, but must be prepared separately or their affinity for the cotton fiber will not be the same. W. B. (ME.)

Building a Perfect Bobbin.

EDITOR COTTON:

I should like to add something to the explanation which "Wash (R. I.)" gives in the August issue of COTTON concerning the running under and over on a fly frame.

The first thing to observe when a frame is in this condition is the poker-bar, which very often becomes jammed with cotton in the rocker slide, thus holding back the change. Clear this waste out and at the same time clear the teeth of the poker-bar and the taper gear, as this sometimes causes running under or over, or both. Also, if the poker-bar is set too deep in gear with the taper gear it may cause the same evil. This last can be fixed by loosening the bolt which holds the poker-bar slide to the rocker and then raising the slide until there is sufficient play in the poker-bar and taper gear, then tighten when it is in place.

The twin gears if set too deep in mesh with the strike gear will hold on the change, or if they are shallow will skip a few teeth, causing running over and under. In time the strike gear becomes worn, and the only remedy is a new gear, which will sometimes relieve the cause of the running over and under.

Always make sure that the ear on the rocker does not strike the knob on the weight hook when it is changing and also that the weight on the opposite side is on the ear of the rocker until after the change. Care should be taken that the rail is lined up and all bobbin gears are set so they will run without jumping.

I had an experience with a Tweedale and Smalley frame running under and I had tried every resource to overcome it, but without success. I would watch this frame build a perfect bobbin and then it seemed that as soon as I was out of sight—it would go under again. I put new latches in and, as I have said before, I thought I had tried everything until I caught it in the act of running under. The right-hand dog which drops into the tension gear and regulates the movements of the cone belt along the cone is stationary on this make of frame and it seems that the teeth in the tension gear had worn a slight groove in the head of the dog and once in a while it would catch in this groove and hold it from changing. It gave me a plenty of work and trouble, but the next time I'll look at the dog about the first thing I do.

"Wash (R. I.)" mentions that if the latches and rocker are worn it is best to get new ones and square them to each

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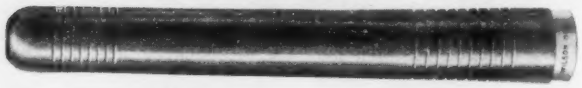

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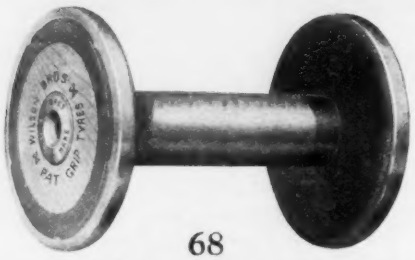

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other. I disagree with "Wash" on this. If the rocker is worn it should be filed up to the correct and original angle; again, the less it is filed off the better. Then a new set of latches should be procured, but not squared up to the rocker. To explain why: The latches in dropping in and out strike an arc. Well, then, in coming out the latch moves the rocker, whereas if the nose of the latch were filed to this arc the rocker would remain stationary. See sketch.

These suggestions I am sure will help build a perfect bobbin. W. O. R. (MASS.)

Working Peruvian Cotton.

EDITOR COTTON:

Replying to the question of "R. L. (Mass.)" who is having difficulty in securing a sufficient breaking strength on his yarn made from 1 5/16-inch Peruvian cotton, I will offer the following suggested layout. Such a layout, with an even spread of rolls and not too much of a difference over the length of the staple, other things being right, will give a good break for the number of yarn he is making.

Now for the layout. Use an 11-ounce lap; 42-grain card sliver; 450-grain comber lap; 48-grain finished drawing sliver; 1.00 hank slubber; 3.00 hank intermediate; and 10.00 hank fine frame for 40s to 50s yarn.

There should be three processes of pickers, the first having a three-blade knife beater running at 900 r.p.m.; and a two-blade knife beater on the second or intermediate picker running at 1,250 r.p.m.; and a three-blade carding beater on the finisher picker running at 1,100 r.pm.

The cards should be set licker-in to cylinder, 10/1000; flats to cylinder, 9/1000; doffer to cylinder, 7/1000.

On the roll settings the sliver and ribbon lappers should be set 1½ inches, 1⅝ inches, and 1¾ inches; the comber draw box, 1½ inches, 1⅝ inches and 1¾ inches; the drawing frames, 1½ inches, 1⅝ inches, and 1¾ inches; the slubbers, 1 7/16 inches and 1¾ inches; the intermediates, 1⅜ inches and 1⅝ inches; and the roving or fine frames, 1⅜ inches and 1⅝ inches.

I trust this will help "R. L." out of his difficulty and that other users of Peruvian will tell us their experiences.

CONTRIBUTOR NO. 1516.

Eliminating Winding Troubles.

EDITOR COTTON:

I notice in the September issue of COTTON that "B. B. P. (Tenn)" asks for some suggestions as to "crossed ends on Foster wound cones," and shall enumerate a few points that may help him out of his difficulty. I am assuming that "B. B. P." is putting this yarn up on paper cones for the yarn trade. There are several causes for crossed ends and these may be enumerated as follows:

1. A loose or slack driving belt on the top to bottom cone drive may result in crossed ends throughout all of the winder.

2. A loose or slack driving belt to the roller shaft drive will affect one side of the winder only.

3. Failure to have the cone resting properly on the roller drum, that is, the cone being too high at either end off the roller drum may cause crossed ends.

4. Failure of the operative to raise the cones off of the drums at stopping time, thus leaving the cones down on the drum at the start of the winder will cause crossed ends.

5. Too much tension on the yarn may cause the cone to slip when the diameter is small. Too much or an uneven tension, or uneven paper cones, when first started, may jump on the rolls and not run up to speed.

6. Paper cones not pushed onto the cone holder far enough or not pushed on snug enough will have a tendency to work loose and make crossed ends. "B. B. P." may find it necessary to tap the cones lightly on the other end when putting them on the holders.

7. A worn dog may affect the traverse and cause a dwell at the change, thus making crossed ends.

8. Too much play or end movement of the drum shafts may cause trouble.

"B. B. P." should have stated the speed of his drums and the models of his winders, also whether his causes are general as to all winders or on specific sections; on all or on certain yarns; on all or on certain operatives; on one or both sides of the machine, etc.

"B. B. P." should be sure that his cone arbors are oiled at least twice a week. Foster winders, properly greased and oiled, seldom give trouble. BERT (R. I.)

Changing the Pitch on Gears.

EDITOR COTTON:

I notice in the August issue of COTTON that "Wash" takes another slam at the bobbin lead frame. He tells "G. D. S. (S. C.)" that his trouble is due to certain "unequal conditions" and states that "G. D. S." should change his compound pinions. Why should he change his compound pinions? I can see no logical reason for such a procedure.

Did not "G. D. S." state when he asked the readers of COTTON for advice that during periods of favorable weather his work ran as well as anybody's?

If those frames were equipped with the wrong gears, could they possibly run properly at any time? The weather has a great deal of effect on cotton, we all know, but I have never heard of a train of cast iron gears that could be influenced by climatic conditions.

It is plainly evident that "Wash" has very little knowledge of spur gear tooth calculations when he says, "the pitch of the train of gears driving the bobbins was changed at some time or other and the compound pinion changed to make up the difference between a small and a large tooth, or vice versa."

Now as the train of gears forming the bobbin drive rotate about a fixed center (that is, not being on an adjustable arm, or other movable device) it would be a somewhat difficult matter to change the pitch of gears under such a condition insofar as securing a proper mesh is concerned. (I was at one time a machine designer, so that I can fully appreciate just what difficulties would have to be overcome.)

When the pitch of a gear is changed the diameter of the gear is necessarily changed also, providing the same number of teeth are used. If, however, the pitch was changed, and the diameter remained the same, then the number of teeth in the gear would have to be increased or decreased, depending solely upon whether the new gear was of a finer or coarser pitch than the one previously used.

As an illustration, let us assume that we have two gears, both of fifty teeth. One has a diameter of five inches

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and the other has a diameter of 2½ inches.

The rule to find the pitch, or properly the diametral pitch of a spur gear is, divide the number of teeth in the gear by the outside diameter of the gear. The result thus obtained will be the diametral pitch of the gear.

Then 50 ÷ 2.5 inches = 20 diametral pitch

50 ÷ 5 inches = 10 diametral pitch

The expression 20 diametral pitch indicates that the gear contains 20 teeth for every inch of its diameter.

It would be easy to write a book on gear tooth calculations, but I know that most of COTTON's readers would have little need to use them, so the space might better be conserved for something more along subjects of greater moment to mill men.

My only object in presenting the foregoing was to endeavor to bring out the point that it was hardly likely that an attempt to change the pitch of the gears on those frames had ever been made. C. C. (N. J.)

Fluted Rolls and Breaking Strength.

EDITOR COTTON:

I have been ding-donged at until I'm about half crazy on the subject of fluted top rolls in spinning. I've tried everything I can think of and still they come; not many, of course, but just enough to keep us on the jump. We buy, I think, the best skins, and sometimes we go along for quite a while without being bothered, using the same flannel and same grade of skins, and still occasionally we find some fluted. To my mind, all of the things I have been told and have read revert back to one thing, that the flutes in the steel roll, say one inch in diameter, are of a certain pitch, and when the diameter of the top leather roll corresponds with the diametrical pitch of the steel roll, it's just the same as the pitch of any change gear that will match with the contacting gear. That is perfectly natural, for the pitch of any gears will match together; if they did not match they would ride and jump over.

Of course there are many things that will cause the leather rolls to flute, thick and thin and soft puffy leather, uneven flannel, etc., but just think of how small the diameter of the top roll must be to match and make those flutes. If you've never figured this out you can't comprehend what a small fractional part of an inch it is.

We roll our rollers with an instrument that is supposed to roll them down smooth and prevent some of this fluting, but it doesn't do much good, except to even the surface of each individual roller.

One superintendent suggested a solution in the shape of a certain kind of skin and flannel. I got what he recommended, and it was pretty costly covering, and seven per cent of the rolls fluted. The rollers and everything were in A No. 1 condition. It may be that skins could be found which would all come the same thickness, but they are so thin I don't see how they could be shaved or sized to one thickness all over.

In connection with all of this worry, trying to make rollers that will not flute, I am reminded of the card room, where you rarely if ever see a fluted roller. How can you account for that? It's beyond me just at the moment, in fact I've only recently began to compare this feature in the two rooms. Most all of the time when a roller shop man finds a skin that he doesn't care to use in spinning, he says, "I'll use this on the card room rollers." Carding is the foundation of spinning, and yet the refuse goes to the carding, and it seems to work, if the laps are smooth and the cots are spliced well at the laps, and the flannel does not show any bad effects.

We used to have old leather top rolls on drawing and railway heads, and would keep them varnished and in order, and then the "experts" experimented with the metallic top roll for drawing, which they had fluted to match the bottom rolls and they replaced the old leather rolls. Of course they had to guarantee just as good and even a sliver. Now, how many new mills are going up that do not use the metallic top rolls; and how many existing plants will you find that have not changed over to them? Yet a fellow will raise the devil with the spinner about something he buys already fluted? How do you account for that, when the drawing does what it does to make the slivers even?

How many readers have found any difference in breaking strength from rollers that are fluted and those not fluted? There should be thorough tests and a general average made. I hope several readers of COTTON will take this up and let us have their findings after careful tests.

T. A. D. (GA.)

Setting the Cushion Plate on Combers.

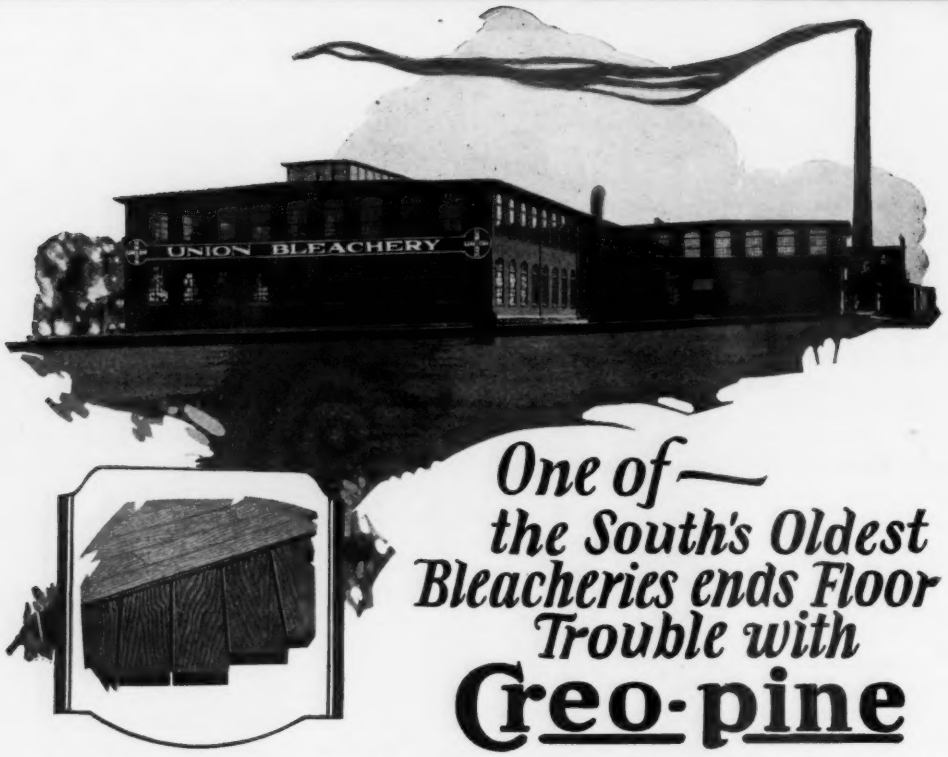
EDITOR COTTON:

I read with interest in the August number of COTTON of the trouble "Joe (Mass.)" is experiencing in setting the cushion plate on a Whitin comber and note that he would like to have opinions from some of the other readers in reference to his difficulty.

"Joe" is not the only one who is having this trouble; he may be surprised to know this, but nevertheless, it is true. I have not seen many Whitin comber men set all the cushion plates on every head of the comber (say 1 7/16) to the steel detaching roll exactly to the gauge used and have the same feel with the gauge at both the left and right side angle in all of the nipper knives.

I can tell "Joe" of one or two things which I think will help him, at least they have helped the writer, who has had the same trouble. First, in setting the cushion or nipper plate to the nipper knife, which is usually a number 22 gauge, it should be seen that the plates are set evenly all the way across and then the bite of the nippers should be tried with paper to insure a solid bite at each end or side of the nippers. Second, before setting the cushion plate to the steel detaching roll the cushion plate should be set to the segment to about a number 21 gauge to get them parallel, then put the amount of angle desired in nipper knife, afterward setting the cushion plate. If that does not overcome the trouble, then I would suggest taking a little angle out of the nipper knife in the head or delivery where the trouble lies, and by adjusting each side of the cushion plate setting I think the trouble will be overcome.

I wonder how many fellows have been up against the same trouble that "Joe" is experiencing and have let the setting go through, not knowing how to overcome it, or have probably done just what I have suggested to this correspondent. I first met with this same difficulty on Whitin combers some years ago; since that time I have mentioned the trouble to many a fellow who had charge of Whitin combers and they admitted having been up against the same difficulty. In odd times when I used to overhaul



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the Whitin combers I have ignored the rule of starting to set the cushion plates from the center of the comber and tried setting from each end, working toward the center, and got a better setting from it, but I would always get my cushion plates as true as possible, even if I had to do it at the expense of the nipper knife angle setting. It is essential for the plates to be parallel in order to be sure of the lap being broken evenly across its width.

I wonder if the rule calling for a man to start setting the nipper plates from the center is made for any special reason; I mean besides mechanical reasons?

Hope that this will be of some assistance to "Joe" in his difficulty. JOCK (MASS.)

Should Middle Top Rolls Be Weighted?

EDITOR COTTON:

We are making hosiery yarns 10s to 22s, using about one-inch strict middling cotton and I should like to have some of the readers of COTTON tell me whether we should weight our middle top rolls or not. In other words, which produces the best results, using a weight on middle rolls or not using a weight? Also, how many pounds should the weight weigh for 10s to 20s hosiery yarns on one-inch cotton? The weight I have reference to hangs to a hook under the saddle. I am of the opinion that our weights are too light, but before buying more would like to get the opinion of other practical men.

I enjoy reading the practical discussion pages and believe this department is doing much good.

G. S. (N. C.)

Card Clothing.

EDITOR COTTON:

China * * * talking about China! As much as I have talked during my short stay in the States, I have found out many things anywhere, from pure philosophy, human nature, social superstition down to card clothing. Believe it or not, as you may. Nevertheless, I am telling the truth.

You know human nature is all the same the world over—this is one thing I have found out. Don't you laugh! I am only telling you my own *experience,* and they say that one bushel of experience is worth ten bushels of dreams or theory or—anyway you know what I mean. Well, if so, isn't that enough? But is it so? (You say—"that's what I'd like to know.") But if you have patience enough, (and that's a good quality for any man, so they told me, and I am taking the liberty of telling it to you) but if you have patience enough, I will try to prove to you that it is so.

You say, "What are you talking about? Is this card clothing?" Patience, patience, we will come to that pretty soon. The world is a funny world—or shall I say that it is the people who inhabit it who are funny? So, why take it so seriously? It is the seriousness that keeps many young men from enjoying their work as they should. They simply can't enjoy it.

I have been told many times that the Chinese are a sort of superstitious people. They worship ancestors. They eat rats. And they do a whole lot of other mysterious things. Yes, it is simply mysterious, as some seem to enjoy thinking of it. Yet, while I was in the States I was told that "13" is an unlucky number. "Don't you do anything when you see a black cat crossing your path in the morning." Besides, we have the "blue Mondays," "black Fridays," and a lot of other things. You say what is the difference? After all, there isn't much difference. Is there any?

You say, "what are you talking about? Is this card clothing? Patience, patience, we will come to that pretty soon. But before we take up the interesting subject of card clothing, I want to make it very clear that there ain't no such animal as Chinese mill puzzles or American Chinese puzzles. I have seen the whole of it and I have given you the whole of it. It is up to you to decide just what to believe. If you enjoy thinking that there is something mysterious relative to the very word China, by all means keep at it. It doesn't hurt my feelings a bit. Why should it? Simply because an innocent people enjoy fancying that their spirits go up to the moon every night when they sleep?

Lest your patience run out, I quickly turn to the subject of card clothing. In China, the mills use mostly Chinese cotton, which you doubtless know is very short in staple and harsh and clean. By experience, it has been found that it is advisable to use the following counts of card clothing: Flats, 70's, cylinder 80's, and doffer 90's. These you will readily see are English counts for card clothing which would be 30, 31 and 32 in the U. S. system of numbering card clothing. This is for the lowest cotton. For the better class we use 80, 90 and 100.

A little theoretical stuff. Take just one case for example, say, 70, 80, 90:

	Flats	Cylinder	Doffer
Counts	70	80	90
Diameter, inches	10/1000	9/1000	8/1000
Points per square inch	350	400	450
Cross sectional area of 1 wire in sq. mil.	78.5	63.6	50.2
Total wire area in 1 square inch of clothing in square inches	.042	0.25	.022

From the table it is seen as the counts get higher there are more points to the square inch of clothing. But its total cross sectional area of wires actually gets less. It is generally attributed to the quality of fineness of wire that takes the cotton along with it. That is to say, the finer the wire the better the cotton will stay. That serves as an answer as to why the different counts of wires were used.

H. H. Y. (CHINA)

Filling Wind for Warp.

EDITOR COTTON:

The following observations on filling wind for warp may be of interest:

I know a mill on 13s warp yarn, which was using a 1⅞-inch ring, 6½-inch traverse, 13/16-inch warp bobbin on this yarn, and the front roll speed on warp wind was 142 r.p.m., and the spinners ran 12 sides. When they changed onto filling wind they put the front roll speed up to 168 r.p.m., and those same spinners run 16 sides. They use a smaller bobbin, about ¾-inch in diameter, and lengthened it.

On the warp wind, a smaller barrel bobbin cannot be used, because it is necessary to use such a light traveler im-

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mediately after doffing, that when the bobbin gets two-thirds full, the ends will whip so badly on the separators that the frames have to be doffed, and the advantage of filling the ring is lost.

Whereas on the filling wind, it is possible to use a smaller barrel bobbin, from ¾ to 1 inch longer, and put 33⅓ to 35 per cent more yarn on it because of the additional length and the heavier traveler, as it is much easier to regulate the traveler on filling wind than on warp wind.

On filling wind, the idea is to use a smaller size ring which will give a wider gauge frame and will allow the traveler to be heavier so the ends cannot possibly whip together. That, of course, will give more front roll speed and make it possible to run nearer to standard twist, which will give a stronger yarn than any other point at which it can be run. The use of the heavier traveler on the filling wind with the smaller barrel is possible, due to the fact that a smaller ring also is used.

There is one other point about filling wind. If you take a 2¾-gauge frame with a 2-inch ring and change it from warp wind to filling wind, and continue to use the 2-inch ring, it means the rail will stay at the bottom of the traverse, below the separator, for a considerable portion of the time, so that it is impossible to run a heavy enough traveler to stop them from whipping together. The separators on warp frames are made for the warp wind, where the bobbin has a taper at the end and the rail stays near the center of the bobbin most of the time.

A. R. (GA.)

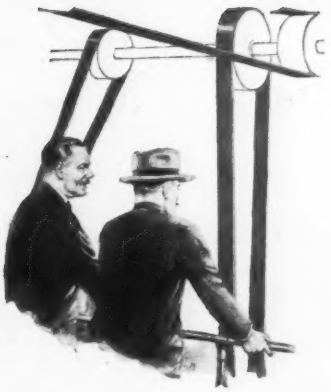
Texas Textile Convention at Denison.

(*Continued from page* 38.)

was asked. "We are using steel harness on our goods," he replied, "and I suppose some of them have been running three years." He suggested that the best arrangement with cotton harness probably would be for the manufacturer to require at least thirty days' notice, and take time to age the product before it leaves the factory, invoicing the mills so he would not have to carry the stock and tie up his money.

Mr. Poole said he did not agree with Mr. Towers about the maker not wanting to carry the stock. "In 1917," he said, "we went over our records for several years and arrived at what we considered to be a fair estimate of a yearly use of harness, and we placed an order, a standing order, with the Emmons people for so many pairs of harness to be shipped out every six months. Last July we wrote them and told them to cancel all of our orders as we were going to change the eye, and they wrote back and said that they had already made up our December delivery, so from that it seems to me that they had been shipping our six months' supply and immediately making up our next six months' supply.

"The use of our harness has increased last year, we used a few more than we did the year before, but on the average we are not using any more than we did seven years ago. Recently we have installed a tying-in machine and have had to put more harness in use, but along the line we were just speaking of, harness not lasting, we have not had that experience at Sherman. I was just telling Mr. Crosby here that most of our harness, when they wore out, we find it is the fault of the loom fixer not setting them properly."



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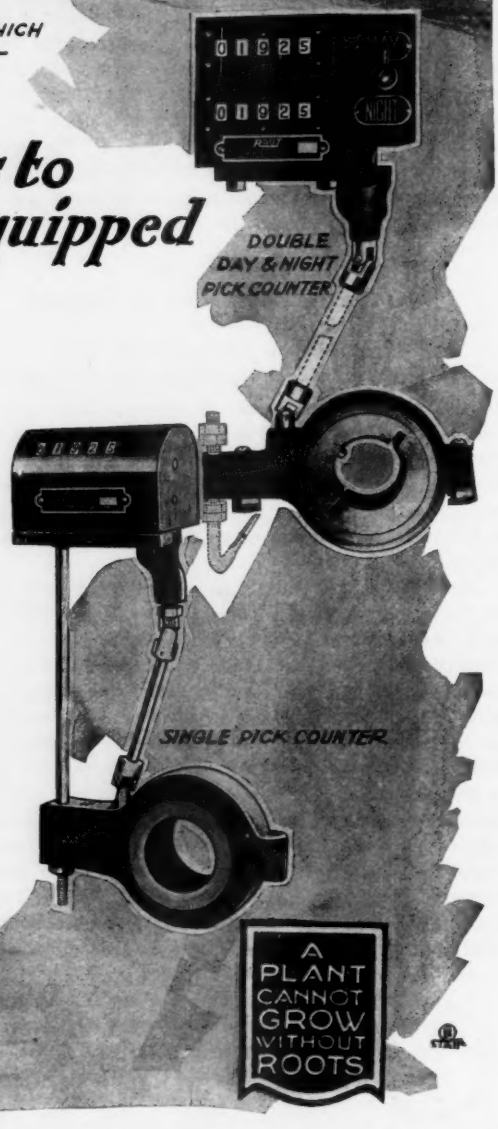

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Steel Heddles on Duck.

The next question put before the house was, "Are Steel Heddles a Success on 6 to 16-Ounce Duck?" Mr. Dilling said he had hoped some one from Itasca would be present, as they had had more experience than anyone in Texas with the steel heddle. When the question was brought up, Mr. Vincent made the point that "you cannot use steel harness with the drawing-in machine." Mr. Dilling agreed but stated that "with the tying-in machine it is all right."

Mr. Coman, of Mexia, was the first to speak regarding steel heddles, saying that, "we are very much pleased with steel heddles on the lighter weights—eight-ounce and down—but we have had trouble on the twelve-ounce goods with the shafts breaking. When we put enough strain on there to make a nice piece of cloth the shaft gives away where the hook comes through in the center—on the 30-inch looms we have only one hook in the center. It seems to be the fault of the wood; they are using a very light wood that hasn't very much strength. We have made up some shafts out of maple flooring that are giving excellent results. Outside of that we are pleased with the steel heddle.

"One other trouble has been with regard to the rivets that make up part of the hook that holds down the shaft in the center, but I think we may not be allowing the hook enough play, and we are trying to overcome that by loosening it up and not allowing the loom fixers to pull down so hard." His weavers, he said, are very partial to the steel heddle now. There was some difficulty on the part of the drawing-in hands to accustom themselves to the steel heddles, he said.

"I wrote Itasca and asked them to give me their experience," continued Mr. Coman, "and the only trouble they have had was when an end would break it seemed to tangle up and make a pick-out. Of course if you are using drop wires that would not occur."

"How long have you been using steel heddles?" asked Mr. Dilling. "We have had some of them running for about two and a half months," replied Mr. Coman.

"We had that same trouble with the rivets," stated Mr. Dilling, "and we found that they were bradded by machine and were not tight. We tightened them up and have not had any trouble." Mr. Coman replied that he had re-bradded his also.

In relating his experience with the steel heddle, Mr. Hunt said that up to 19 reed, he uses the single shaft, and the double shaft on a 22 reed. He declared that his weavers are perfectly satisfied, and that his biggest obstacle was the prejudice of the loom fixers, which he has overcome, and which, having once been a loom fixer, he could appreciate. He added, however, that there are a number of little difficulties that will be encountered by the mill using them, such as the hooks breaking, as had been mentioned, etc.

"I asked Mr. Hunt about steel heddles some time ago," said Mr. Dilling, "and he said they were no good, but afterward a salesman came along and we bought five sets, and today, if I were to tell Mr. Hunt that we were going to stop using them, I reckon I would have a fight on my hands."

Urged to tell of some of the "little difficulties," Mr. Hunt stated that for one thing they had to put in heavier bars. Also, Mr. Dilling added, "Mr. Hunt decided that where we have one eye in the top harness to put in one

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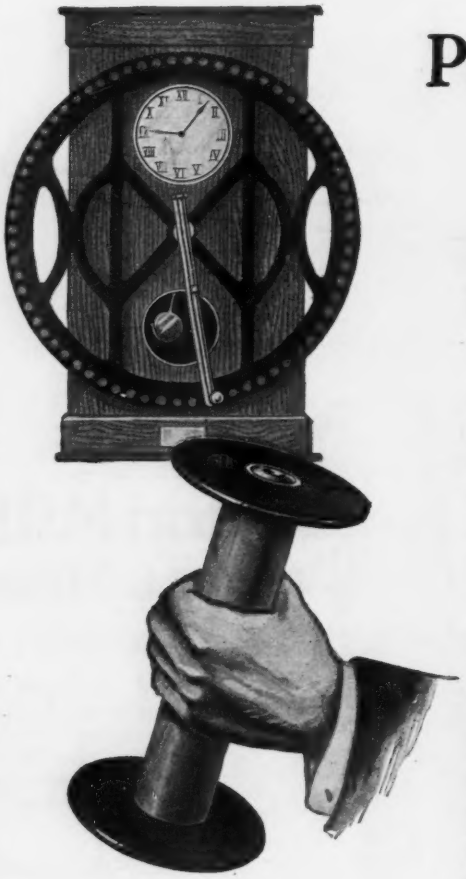

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more on each side of it where the strap hooks connect in there. Another thing is to mark the front of the harness before you put them in, and always put these marks to the front when drawing in. Also, on the twine harness you have markers, and to overcome this on the steel harness, Mr. Hunt took a pair of tin snips and counted twenty eyes and clipped the top off of that one so that the drawing-in hand can count back if necessary."

Mr. Quinn Explains Filling Wind for Warp.

The next question taken up was that of using the filling wind for warp yarn, and Peter Quinn, spinning expert of the Draper Corporation, with headquarters in Atlanta, who is recognized as an authority on the subject, was introduced to speak upon it.

"With the filling wind, as with everything else, you must start in right and go all the way through with it before you can get the proper results," said Mr. Quinn. "The idea of the filling wind on the narrow gauge frame is that the work will run better, you can increase the production, make a stronger yarn, and, if you get the proper bobbin, you can cut out one-fourth of your doffing, which means that your spinners can run more sides and will eliminate one-fourth of your doffers. You must start in right, however, you must get the right size bobbin, you must adjust the frames to it. You can use a smaller ring, and by doing that you can get a stronger break on your yarn and get more speed.

"On the spooling end of it you can cut out thirty per cent of the spooler spindles. In other words, you increase the spindle speed on those spoolers so that you can get more yarn on the spool; by increasing the spooler speed you create a tension which allows you to decrease the tension of the device, which means you can put ten per cent more yarn on your spool, and by doing that you spool more yarn and you can run an extra wrap on your warper beams which means less waste on your slasher.

"In rewinding the filling wind it shakes out a whole lot of trash. You can come nearer to running standard twist, which gives it more elasticity, and when you put that yarn on the slasher and size it, the yarn will be twenty per cent stronger than it was when it left the spinning because the size will penetrate it.

"Like everything else, you must educate the spooler hands how to run it. Some of these old-time spooler hands will say, 'We can't spool as much yarn,' but after they get used to it they will spool three to five boxes more yarn. They will not do it on the start. You must teach them all over, and when you do that it is like teaching a new hand. They cannot do as much work until after they get used to it, and then they can spool from three to five boxes more which means they will make more money and have an easier time.

"You take the same bobbin that you are using on warp wind, and it means you can put the same amount on it, but if you increase the spooler speed thirty per cent and put thirty per cent less yarn on the bobbin it means that the girl cannot run as many spindles. You should get a bobbin that you can put thirty-five per cent more yarn on.

"With the bobbin-holder you run a standard twist in warp of 4.75—we call that standard twist because you will not stretch that yarn in spooling it—but on the filling wind you use 4.25 against the 4.75, because that bobbin stands still, which means it takes friction off of the bobbin holder, and you run a higher spindle speed, which puts more yarn on the bobbin.

"A Belt is No Stronger than Its Weakest Lap"

Remember This About BELTING

IT IS quite possible for a belt to be in service for years, yet not prove entirely satisfactory. A main drive, for example, where belt is attached to the motor:

If the belt is not made endless properly, every revolution will cause the imperfect lap to jar the smooth, easy function of the motor. This works a hardship on bearings. Faulty transmission results, work slows up, delays are frequent, profits suffers.

How important it is, then, to make sure not only of quality leather but also of quality workmanship in joining laps and plies.

MOLONEY Leather Belting

assures you of all this. It is leather selected with utmost care and expertly treated for belting use. Plies are perfectly matched—in thickness do not vary a hair's breadth. Laps are skillfully made and fitted. And "M" Cement joins both plies and laps so firmly there is never a doubt that they will *stick*, inexorably and relentlessly, for year after year of splendid service.

Moloney Engineers are always ready to help you solve your transmission problems.

Moloney Belting Co.

124-138 *North Franklin Street* · CHICAGO

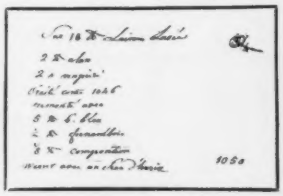
ATLANTA, GA. PORTLAND, ORE.

J. C. DUCKWORTH

Special Agent for Cotton and Textile Mills

GREENVILLE, SOUTH CAROLINA

Recipe from the Ancient French Dye Recipe Book

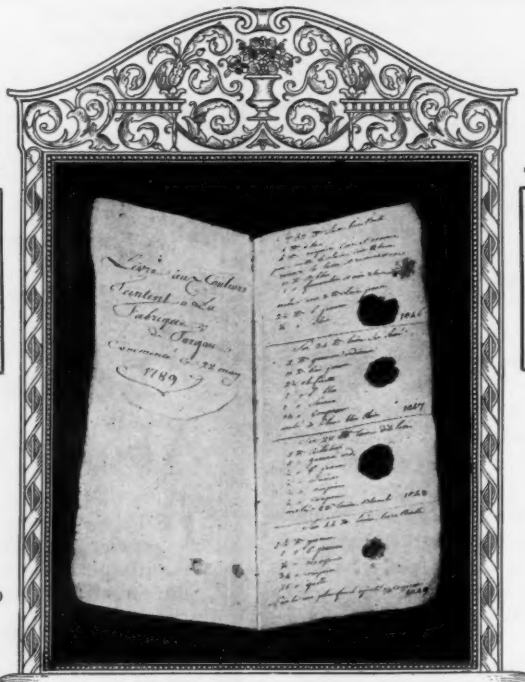


TRANSLATION

To 18 lbs. washed wool
2 lbs. alum
2 lbs. vinegar
treated as 1046

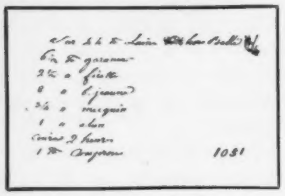
Topped with
5 lbs. Blue wood
½ lb. Pernambuco wood
⅛ lb. composition
soften with one pail of urine

1050



This ancient French dye recipe book is now in possession of the General Dyestuff Corporation. Among other recipes of historical interest it contains the formulae for the world famous French Gobelins.

Recipe from the Ancient French Dye Recipe Book



TRANSLATION

To 44 lbs. Wool out of bale
6½ lbs. crapp
2½ lbs. ficette
8 lbs. yellow wood
¾ lb. "Muquin"
1 lb. alum

Boil 2 hours
1 lb. Copperas

1051

No. 1 of a series of advertisements based on the dye recipes that established the supremacy of French textiles in the XVIIIth Century

WASHINGTON was inaugurated President when this collection of dyeing recipes was used for the production of fast colors in France. Now, after 136 years, these hand-penned formulae possess a deep historical and scientific interest. They graphically display the tremendous advance made by the dyestuff industry since 1789. Users of dyestuffs now have at their disposal many colors of far better fastness and easier method of application. The highest requirements of industry are today met by the types offered by us, and include the products of

GRASSELLI DYESTUFF CORPORATION

Plants: Rensselaer, N. Y. Grasselli, N. J.

and

FARBWERKE, VORMALS MEISTER, LUCIUS & BRÜNING

LEOPOLD CASSELLA & CO., G. m. b. H.

and other European manufacturers

GENERAL DYESTUFF CORPORATION

Successor to Dyestuff Department *of* H. A. METZ & CO., *Inc.*

122 Hudson Street

New York

"Take it on this English broadcloth. It is a very hard weave, and it finishes a whole lot better and the work runs better when filling wind is used. I know of mills that get more money for their cloth and at the same time they are producing it cheaper.

"In using the cone-shaped bobbin, this changes the diameter of the ring so that you can regulate the traveler and start with a straight build. If you use a straight bobbin—we will say you have a two-inch ring—that means on the bottom of that bobbin you must use a lighter traveler, and in using that you get a build where you have a taper on both ends. The result is when you spool that off the friction on the bottom will cause more ends to break down. Where you have a cone on there it means it changes the size of the ring at the bottom which allows you to use a heavier traveler and gives you a straight build.

"You take most of the bobbins on the warp wind, and nine-tenths of them have been cut with a knife. On the filling wind, with the thirty per cent higher speed you run it, the least little splinter will cut an end down. With the filling bobbin, you do not use a knife. You can use a ¾-inch bobbin against a 15/16-inch on the warp wind, and you will put more yarn on the 15/16-inch bobbin than the ¾-inch because you have to run such a light traveler that it is not possible to fill the ring up. On the filling wind it is different; you can regulate the traveler at the bottom to fill the ring up.

"The idea of the filling wind is to put thirty-five per cent more yarn on that bobbin and not have that end break down unless there is a bunch on it. A lot of people imagine that all you have to do is to use a tension device. You must use a guide also just the same as you do now, because the tension device does not catch the bunch; it just puts tension on there. Using a tension device means you put the same tension on for the whole length of the spool, which means you do not have a soft spool. With the bobbin holder, where it dwells at the top and bottom you have a soft spool. You get away from that on the filling wind. You do not have to fill the spools full, and you will have a lot stronger yarn, and it does shake out a whole lot of trash that winds up in the warp wind. You take the twist out on the spinning and put it back in spooling it, that is what makes the yarn stronger; your yarn will break from four to eight pounds stronger on the filling wind. There is no strain in removing the yarn from the bobbin. You cannot use the same bobbin and put as much yarn on there, and you will have more ends breaking down in the spooling.

"There is a mill in Georgia making sateens whose selling agent told them they were making the best sateen on the market, but that it would not finish like the English sateen. The superintendent put on filling wind, and after he did it he got a cent a pound more for his cloth because it finished better, and he increased his production ten per cent; in other words, he cut the cost of his weaving, and got more money for his cloth. He had to put in eighty-five more looms with the same number of spindles.

"Of course you will have the cost of the bobbins and the filling builder, but it doesn't take long to compensate for that. You can use the same rings, but you will have to change bobbins if you want to get the results. It's possible to run the same bobbin, but you can't cut out a fourth of your doffing and doffers and you cannot put the yarn on there and it will take more spooler hands to spool the yarn."

Bondaron

Reg. U. S. Pat. Office.

"THE LEATHER WITH THE HAIR ON"

CHECK STRAPS

BONDARON Check Straps are made by a special tanning process which gives them great strength and resiliency.

Notice the hair in the above illustration. This means that BONDARON leather has not been subjected to a **lime dip** which weakens ordinary check straps by destroying the fibres of the hide.

In leather it always pays to buy the best. It will pay you to specify BONDARON Check Straps and other BOND products wherever they can be used.

Other BOND Products

BOND TEXTILE LEATHER PRODUCTS

Made from Bondaron, Bondural and Bondex Leathers:

Lug Straps
Harness Straps
Picker Straps
Spindle Straps
Shuttle Straps
Loom Pickers
Cone Belts
Round Belting
Flat Belting
Spinner Belting
Twister Cots
Condenser Aprons
Worsted Aprons
Bunters

Picker Leathers
Apron Leathers
Belting Butts

Oak Tanned Slabs
Lace Leather
Valve Leathers
Back Straightenings
Filleting Leather

English Sheep Skins
Persian Sheep Skins
English Roller Bends
English Calf Skins

Write for Booklet 101.

Manufactured Exclusively by

CHARLES Bond COMPANY

Leather Curriers, Importers and Manufacturers of Textile Leathers

617 Arch St., Philadelphia, Pa.

RAYON REEDS

On account of the ever-increasing use of Rayon (artificial silk) by Southern cotton mills, we are making a reed particularly adapted to the Rayon yarns.

Special attention is necessary to the finish on the wire used in these reeds, which finish requires approximately three times the length of time usually given to regular reed wire.

There is, however, absolutely no extra charge for this special finish as we invoice Rayon reeds at our regular standard prices.

STEEL HEDDLE MANUFACTURING CO.

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21st and Allegheny Ave., Philadelphia, Pa.

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THE STEEL HEDDLE LINE

"Duplex" Loom Harness (complete with Frames and Heddles fully assembled).
Drop Wires (Nickel Plated, Copper Plated or Plain Finished).
Flat Steel Heddles—Harness Frames—Selvage Harness—Leno Doups—Jacquard Heddles — Lingoes — Improved Loom Reeds—Leno Reeds—Lease Reeds Beamer Hecks—Combs.

Why are the users of "Buffalo" air conditioning systems pleased?

Because: Says the Vice-President of a Philadelphia firm of dyers, bleachers and finishers, "Buffalo Forge air conditioning systems in our dyehouses save $10,320.00 a year by increasing production 15%, eliminating spotted goods, and greatly lengthening the life of the roof."

Another user in New York City, says:

The removal of the steam rising from our jigs is absolutely necessary to profitable operation, and the only one right way to do the job is the Buffalo Forge way. We estimate that our three installations repay their original cost every three years."

For steam removal, prevention of roof rot, saving in spotted cloth, and increased production togethed with a clear atmosphere and healthier working conditions—No method compares with that used by Buffalo.

That's why!

Buffalo Forge Co.
460 Broadway
Buffalo, N. Y.

Following his remarks, Mr. Quinn was asked a number of questions. With reference to bobbins, he said he would prefer to use a bobbin with a cone. As to bunch builders, he said, they "mean you must use a straight bobbin and a lighter traveler; but with a cone it changes the size of the ring and you can use a heavier traveler and wind the yarn on tighter. I say that regardless of the fact that I happen to be selling bunch builders; I'm talking against the bunch builder but for the interest of weavers and good weaving."

One man stated his travelers would last about two weeks, and wanted to know if filling wind would increase their life

"You probably have a worn-out ring," answered Mr. Quinn. "They do make a special traveler that will last three times as long as the ordinary traveler because it has a slot in it and they can temper the points. Your traveler certainly will last longer if you get the proper bobbin because the harder the twist in the yarn the quicker the traveler will wear out, and on filling wind with the proper conditions you reduce the twist."

Departing from this discussion for a few minutes, President Dilling presented the question, "Is it really a paying proposition to run strips back into your stock? We know it is all right on low-grade duck, but assume we are running on A-grade duck." Opinion seemed opposed to this practice, Mr. Tatum summing it up with, "What's the use of taking it out if you are going to put it back in again?"

"I do not believe in it," said Mr. Towers. "I would recommend taking the strips out and selling them for 75 or 80 per cent. If you run them back you have a small percentage of long fiber, but not enough to pay you for carrying all the load of short fibers back through the mill. Of course if you want to make a waste product it would be all right to use them."

"I agree with Mr. Towers," responded Forrest B. Gardner, manager and superintendent, Belton Yarn Mills, Belton, when called upon. "What is the use of setting up the cards to take out the strips if you put them back? I do not believe you can maintain breaking strength by putting the strips back."

Mr. Dilling asked how many mills represented were putting strips back into their regular product. Mr. Tatum replied that he does not but that he works them into a waste product, and "we are the only mill I know of that does that."

"How much of these strips do you finally get into your cloth?" queried Mr. Edmiston. "How much is lost on the cards, fly frames, etc.; don't we finally sweep most of it up on the floor, anyhow?" No one was in a position to give a method for figuring this.

"How many of you ever tried doubling the speed of your flats, and with what success?" inquired Mr. Tatum.

Herbert A. Burow, overseer of carding, Bonham, stated that "we have speeded up our flats and the reason we did it was we had a lot of short staple in our cotton, and by having just the conditions we have, we work all our strips back into our waste grade of duck. We know we are getting a great deal of the shorter staple out of the better grade of goods."

"But it wouldn't pay unless we had that waste product to put them into," added Mr. Tatum.

"No," agreed Mr. Burow, "but of course it helps the white stock by taking it out of there."

Mr. Dilling said he had speeded up seven or eight cards

Better Lubrication at Less Cost per month

Are your bearings gluttons for oil ?

Do your men have to keep constantly feeding the hungry bearings with liquid oil—?

If so, change their diet to

TRADE MARK REGISTERED IN
NON-FLUID OIL
UNITED STATES PATENT OFFICE

MODERN TEXTILE LUBRICANT
That stays in bearings

and you will have to feed them only one-third to one-fifth as often as with liquid oil.

You will save time, money and lubricant. Your bearings will be better lubricated; friction will be minimized and power losses lessened.

Then too, your losses from oil stains on goods in process will be practically eliminated—for NON-FLUID OIL stays *in* the bearings and *off* the product.

Test NON-FLUID OIL at our expense —send for free sample and bulletin, "Lubrication of Textile Machinery."

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MAIN OFFICE: 292 MADISON AVE., NEW YORK, N.Y. WORKS: NEWARK, N.J.
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GARLAND

A Fine Looking Loom
Harness of Great Durability

We believe that no more attractive looking harness is made than those which we are turning out right along. The harness looks smooth and feels smooth. The eyes are of just the right size, in perfect alignment and are open just enough to draw in well. The harnesses not only look well but they weave well and wear well.

Will you write for full description?

TRADE MARK

GARLAND MFG. CO.
SACO, MAINE

where he runs stuff for this B-grade duck.

The discussion here reverted back to filling wind for warp, and W. L. Moss, manager, Texas Roller Covering Works, was asked if filling wind would lengthen the life of roller cots. "I do not see how it could affect them," was his reply.

S. L. Bolton, overseer of spinning, Dallas Textile Mills, Dallas, next gave an experience with this practice. "We have been on filling wind for two years," he said, "and I have learned a whole lot about travelers. I got hold of some that ran a week, day and night, where we usually think that two weeks is the life of a traveler. But then I have changed. I used to think that the Hicks square point traveler was the only thing to use, but I have changed my mind, and have gone onto the Wilson round-point traveler. We have 3½-inch gauge frames, with 2¼-inch rings, making 14½s warp, using a cone-shaped bobbin. This new traveler I ran four weeks day and night and you cannot tell it has been run at all. You can take a Hicks square point, and in no time it turns right blue. Our front roll speed on the 14½s warp is about 145 r.p.m. We use a seven-inch bobbin, putting about 1,600 to 1,800 yards on the bobbin. I have five spoolers in the mill for 30 warp frames of 228 spindles to the frame, and the spoolers have 100 spindles, 50 to the side. I use five women to spool up all the yarn made, on four of those spoolers, as I have covered one spooler up. With the filling wind my warpers run better. On the spooling I have found that the bell type of tension is the best, and it seems to take out the motes, too. I put another wrap on the section beam.

"The only thing that I have found wrong is, we have a body-forming attachment that builds a bunch on the bottom and then comes up, after the frame has run about twenty minutes it forms that bunch down there, and my travelers seem to get a little too light, but if I go ahead and put on a heavier traveler it is too heavy when the frame gets full and we have a pulling on the yarn."

Commenting upon Mr. Bolton's remarks, Mr. Quinn said that, "with the round point traveler, you have 66⅔ less friction on that traveler, and that is why you do not have the pull on it. You take a square point traveler, there you have 66⅔ per cent more friction on that and with the size ring that you are using, it usually will turn blue. On your numbers you ought to use a square point traveler as the round point is made for finer work, but, as a fellow says, the thing to look at is results, and not what you ought to do. The round point traveler is made in a much smaller circle. In the same number it is made in 1½ against 2 in the square point. If you used the 2-circle traveler with the round point on your numbers, when you started up the frame about half the ends would come down, but with the square point it is impossible for that end to come down; that is why they use the larger circle. And if you attempted to run a 1½ circle with the square point it would break down the ends so that you could not run it.

"In regard to the yarn whipping together, if you will speed up your traverse about 33⅓ per cent you will get away from that whipping together. The trouble is now when that rail gets to the bottom it dwells, and when it does, the ends whip together.

"Or you can put on a cam which changes quicker—Saco-Lowell is putting one out, I think—or you can take the same cam, and, by changing the lay gear, speed up about 33⅓ per cent, and use a lighter traveler, because the minute the rail changes it is impossible for it to whip together. On filling wind that rail should not dwell.

"Another thing is to have a 1⅝-inch Pittman roller, and that will take up the lost motion so that the rail will never dwell.

"One other point with regard to filling wind. On making filling for weaving the rail should run up slow and down fast, and on filling wind for warp we should reverse it and run it up fast and down slow. The reason is that on your spooler you have a regular speed on the spindle and the result is that it will not slough off. In the weaving, if you are running it up fast the shock of sending the shuttle across the loom will cause it to slough off because you have 66 inches of yarn on the slow motion and when it goes across it will slough off, but it will not do it in the filling wind for warp because you have a regular speed, and no shock, on the spoolers."

The concluding discussion of the evening meeting related to the comparative responsibility of the weave room and the other departments of the mill. Mr. Chappell declared that in order to produce good cloth, the preparation must begin in the opening room and be carried on through; the weave room, he said, gets blamed for many things which occur before the materials reach it. He said he had once figured that, out of the seconds attributed to a certain run of cloth, only 30 to 35 per cent of them had originated in the weave room, while the balance had been directly or indirectly caused in some preceding department. He urged a better cooperation between the preparatory departments in assisting the weave room to turn out better goods. Others discussing this in a similar vein were Messrs. Dilling, Poole, Wilson and Hunt. After this discussion the session was adjourned.

On Saturday morning at 9:30 o'clock the discussion was resumed in the Chamber of Commerce assembly hall. The first subject taken up for discussion was

The Care of Electric Motors and Starters.

President Dilling introduced C. E. Reid, of the Dallas office of the General Electric Company, to begin the discussion on this subject.

"The application of electric motors has been so widespread during the last few years," said Mr. Reid, "that the ordinary man in the run of business and the housewife know more about the operation and care of motors than the electrical expert knew several years ago. The housewife is now an extensive user of motors; for example, a small motor washes her clothes, pumps her water, does her churning, operates her sewing machine, etc.

"Since motors are such an intimate part of our business and home life in saving us so much labor, it is almost imperative that we know something about the care and maintenance of these useful servants. We do not care so much about what makes a motor mote, but we want to know how to keep it moting, so that it may give us the longest life possible with the least amount of trouble.

"Heretofore, people have looked on motors as something highly mysterious that required a specialist's attention, but we know that a motor is nothing but a mass of copper and iron and is composed of a rotor, a stator, and a set of bearings.

"In order to properly care for anything, we must know something of its characteristics, weaknesses and manners. For instance, the bearings have given us quite a lot of trouble. If we just keep in mind three things to do on a

THE NEWPORT COLORS

For Cotton

Vat Greens

Anthrene Green B
Anthrene Green GG
Anthrene Blue Green B
Anthrene Green 3G
and
Anthrene Jade Green

A group of Greens meeting every requirement as to shade and fastness.

NEWPORT
TRADE MARK
"COAL TO DYESTUFF"

Newport Chemical Works, Inc.

Passaic, New Jersey

BRANCH OFFICES AND WAREHOUSES:
Boston, Mass.; Providence, R. I.; Philadelphia, Pa.; Chicago, Ill.; Greensboro, N. C.; Greenville, S. C.

This Cotton Mill Is 1,100 Feet Long

—is six stories high and houses in the main building 125,000 spindles, requiring for its operation from 2,500 to 3,000 employees. It is modern in every respect.

This mill was established in Columbus, Georgia, about twenty-five years ago on a very modest scale. Exceptionally favorable conditions peculiar to Columbus and good management have been responsible for its development to its present proportions—the largest mill in the South under one roof.

This mill is one of the fourteen successful cotton goods enterprises in Columbus every one of which has a very similar history. All are good dividend-earners and operate steadily year in and year out.

May we tell you about these conditions that so favor the textile industry at Columbus, Georgia?

A letter will bring a comprehensive survey covering all conditions affecting the textile industry at Columbus—materials, power, labor, wages, living conditions, freight rates and facilities, climate. All correspondence confidential.

These Essentials Mean Factory Profits

Dependable hydro-electric power	Absolute freedom from malaria
Reliable native-born labor	Pure drinking water supply
No labor disputes or strikes	Plenty of low rental houses
Big surplus supply of cotton	Efficient street transportation
Coal, iron and timber handy	Fine churches and schools
Rail and river transportation	Commission-manager government
Very low building costs	Friendly public sentiment
Pure, soft river water	Mild winters and summers

Five Years Tax Exemption for New Industries

New Industries Committee

of the Chamber of Commerce

Postoffice Box 1220

The Logical Southern Location

Columbus, Georgia

Where Navigation Meets Power

bearing, it will help. First, the proper lubrication; second, the proper belt tension, and, third, the proper alignment. These three things are highly important and all there is to the ordinary sleeve bearings—all our motors of the squirrel-cage type have the sleeve bearing.

"In regard to the stator and rotor, the air gap is the most important item; it determines the efficiency and life of the motor, and it is highly important that the motor be blown or sucked out with a vacuum cleaner not less than once a month. In certain installations where there is an accumulation of dust or fine metal shavings, it is very bad to blow your motors with high pressure because these metal shavings get in there and cause short-circuits. In the cotton mill, especially in the machine shop, if the motors are close to the floor, do not blow the motor out but use suction or take it to pieces and clean it.

"These three things we must look out for. We must keep the motor clean, we must have the proper air gap, and take the proper care of the bearings. If the man in charge of your motors does not have an air gap gauge I will be glad to send him one. It is highly important to keep the air gap clear; it not only increases the efficiency of the motor, but it checks up on the bearing wear.

"Now we get into the starting equipment, which is really the heart of the electrical equipment. Most of us in the cotton mills are familiar with the plain hand-starting compensator which is nothing but an ordinary switch which reduces the voltage until it gains momentum and then you give it the full voltage. One thing to keep a starter in good shape is to look over the contact points and see that they are not burned. One thing that is giving the cotton mills trouble is the burning of these tips, and there is a good way to eliminate it. When you start the motor throw that starting lever over just as hard as you can because you are eliminating an arc inside the compensator, then allow it to get up to speed and jerk it over on the other side."

Mr. Tatum asked Mr. Reid if the insulation did get broken, what would be the best way to repair it. "There is no way to do that," said Mr. Reid. "The electric coil in a motor has been properly baked and varnished and it takes about four or five hours baking, and then it is dipped in a certain compound and baked again. I think there are four bakings and three dips. Spraying them is all right if you can bake them between sprays. Any additional spraying of varnish you put on will of course be that much more protection."

"Is it worth while, in case you have a motor where the coils are oil-soaked, to take the rotor out and have a coat of paint sprayed on?" asked Mr. Dilling. "No," was Mr. Reid's reply, "because the insulation properties of the winding have been destroyed when the oil soaks through it."

Mr. Gibson brought out the point that in putting on belts which have come off, the starter should be pushed in so that all of the points will be in contact so they will not burn out. It is not a good policy, he pointed out, to put on belts by what is known as "goosing" unless it is too much to do it by hand.

Mr. Poole asked Mr. Reid's opinion of the recommendations made by the insurance companies insuring motors. "I think it is a safeguard all right, as no doubt the companies have competent men capable of making these recommendations," said Mr. Reid.

Reuben Stegall, master mechanic, Consolidated Textile Corporation, Bonham, was asked to give his opinion on the subject of motor care. "We have a rule that we go to our starters and motors every three weeks," he responded, "and give our contact points a general overhauling, take down the boxes and look them over and keep our bearing boxes well oiled. We change the oil about every three or four months and then wash out good with kerosene and re-fill them. We do not have much trouble."

"Did you ever have any?" asked his superintendent, Mr. Tatum.

"Yes, we did; we found that the contact fingers had become corroded and we were not getting a good contact. Then we have one motor in the card room that we have to take care of more than the rest, and that is on account of 'goosing' on the belts. We have some long counters in the room and that is the only way we can get the belts on."

"Can you save the fingers?"

"If they are burned too badly we do not fool with them, but we do take any that are burned just a little bit and dress them up."

"Does it really hurt the contact points to 'goose' the motor if you do it quickly?" asked Mr. Dilling.

"I don't know," said Mr. Stegall, "but it doesn't seem you ought to do it quickly with a big belt; if you shove it in quickly it is too fast for the man and you are liable to throw him off the ladder."

Mr. Dilling said he thought the trouble was that the man starting the motors doesn't know just how to handle it; that they do not realize the importance of a quick contact.

"It is the proper rule in starting a motor to go over right quickly and not stop and then go back, but we do not have any trouble in starting ours; we find all of our motors in good shape except that one in the card room," said Mr. Stegall.

"We go around and blow our motors three times a week and we have a man who does nothing but blow the motors," he continued.

"While they are stopped or running?" asked someone.

"While they are stopped," answered Mr. Stegall.

"Who starts the motors?"

"We have a certain man to do it every day."

"Do you clean in every department three times a week?" inquired Mr. Poole. "No," said Mr. Stegall, "just in the card room, picker room and opening room. In the weaving, spinning and cloth room we blow them twice a week."

Mr. Gibson brought out the point that "where you have 600 or 700 horsepower, if you will not start all motors at the same time it will help." He answered a question from Mr. Edmiston by saying it is best to start with the heavier loads and then follow with the lighter loads in starting up.

This practically concluded the motor discussion, and the next item taken up was the question, "Has a Light Grade of Oil Proven Successful in Comb Boxes?"

Mr. Dilling explained that a number of mills were reported to be using a light oil in the comb boxes, and that the meeting would be interested to know what success attended it.

"Just at this time we are using a light grade of oil in our comb boxes, and like it better than the heavy oil; we are using a motor oil," reported C. B. Brady, overseer of carding, Sherman Manufacturing Company, Sherman.

"How old are your boxes?" asked Mr. Dilling.

"The oldest boxes we have are 1916 model," stated Mr. Brady, "and we have some 1922 model."

"We recommend Mi Cleanser very highly"

says the Standard Knitting Mills, and this is the consensus of opinion among all mills who have tried MI CLEANSER on their floors—either wood, tile, marble or concrete, for MI CLEANSER is no ordinary powder—not a by-product—but a special cleaner made of strictly high grade materials designed to clean quicker and better.

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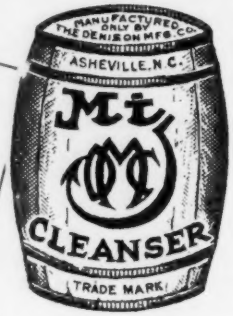
Knoxville, Tenn.

"We have been using MI Cleanser for the past seven years and find it to be a very efficient and economical cleanser. We also find that it does not injure the floors in any way as other cleansers that contain lye. We recommend your MI Cleanser very highly."

(Signed) C. S. RADER, sec'y

Sold only in barrels of 445 lbs. net.



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It is absolutely free from eating properties, not only harmless to the finest floors but harmless to the skin—a pure white, sanitary powder containing no grease or animal fats. The non-soluble base is a special grade of feldspar, the finest natural abrasive known. Combined with a perfect solvent of oil grease and dirt, MI CLEANSER continues to clean as long as it is kept in motion. It is simply dusted on the floors and scrubbed with medium wet mop, brush or scrubbing machine.

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ESTABLISHED 1915

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An ample supply of labor—white, intelligent. Content to work for reasonable wages. Majority skilled in textile work. Plenty of unskilled labor available.

POWER
Cheap power is available from hydro-electric plants operating from nearby streams. Only one-half of the 75,000 potential H. P. is now being utilized.

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Four railroads operating 11 separate lines offer ideal distribution facilities. Two direct connections to each of the six South Atlantic seaports.

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An abundant and excellent water supply is furnished by the city. Various analyses show both city and branch water are applicable for bleaching and manufacture of Rayon.

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An ideal year 'round climate of 63.5 degrees. Heat prostrations unknown and snow is extraordinary. 10½ hours of daylight on the shortest day of the year and 14 hours on the longest.

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Textile Manufacturers, Hosiery Mills, and other manufacturers have an unlimited opportunity in Columbia, with an ideal southern location in the heart of this great industrial center, affording every advantage they could possibly want.

Three trunk-line railroads and one inter-state road operate eleven separate lines, and Columbia is the only city in the southeast having two direct lines of railroads to each of the six Atlantic seaports.

Columbia experiences no extremes of either heat or cold,—an ideal year round climate of 63.5 degrees.

Here you will find a plentiful supply of 100% American labor, power, transportation, ample water supply, and 1156 acres of industrial sites at present available.

Let us send you information of the advantages Columbia offers. Write for copy of "Columbia Unlimited."

WM. LYKES, JR., *Secretary*

COLUMBIA CHAMBER OF COMMERCE

COLUMBIA

SOUTH CAROLINA

"I figure the age and condition of the boxes has a great deal to do with it," said Mr. Dilling.

"The main thing is oiling them and keeping them oiled," said Mr. Brady. "If you pour too much oil in, it will be bad and if you do not get enough it will hurt, too."

"We are using a motor oil in the boxes," reported Mr. Towers, of Fort Worth. "Before we did, however, we had been using a semi-fluid lubricant, and we soaked the boxes in gasoline and then blew them out with steam to get a good circulation through all of the oil passages. We use a gauge so that we do not get in too much; in fact we put it in by drops, almost. It is a special heavy-medium motor and shafting oil."

"Where is your oil level?" asked Mr. Edmiston.

"About 1¼ inches off the bottom," said Mr. Towers.

"About how far below the bottom of the bearing?"

"It is the splash system," said Mr. Towers. "You must have it high enough to pick it up on that eccentric shaft. It works on the same principle as the oiling system in a Ford car."

"I should think the bearings might get worn or loose," declared Mr. Edmiston. "As long as you get the oil to the bearing it will not heat up or wear," replied Mr. Towers.

"Well, if it is successful it would certainly be economical to use a light grade of oil in the comb box," said Mr. Edmiston.

Mr. Towers suggested that anyone having trouble with the comb boxes should first look to see whether the oil passages are opened up. He said his cards are 1916 and 1917 model, and he has been using this light oil for twelve months, going over them once a week. Some times, he said, the boxes do not need any oil.

"Do you ever drain them?" asked Mr. Poole.

"Not in a year," was the response from Mr. Towers, who added that there was no residue or sediment noticeable.

Mr. Brady told Mr. Towers that he had tried to use a gauge, but that sometimes it would go down so far and touch something. Mr. Towers replied that he uses a strip of tin about ¼ inch wide, and suggested that Mr. Brady turn the eccentric over as that might remove the obstacle to the gauge.

Mr. Burow asked if the boxes ran warmer with the light oil, but Mr. Towers replied in the negative, declaring also that it is an advantage to reduce the speed of the doffer comb.

S. A. Morton, overseer of carding, Dallas Cotton Mills, Dallas, reported that he uses a motor oil in the comb boxes and likes it better than the heavier grade of oil.

The next discussion related to cooperation between overseers and master mechanics. A number of the men discussed this question, some of them former master mechanics and some overseers. The general concensus of opinion was summed up in the expression that a spirit of cooperation should permeate the plant and everyone work toward a common end. The master mechanic's position, one man stated, puts him rather in the position of servant to the remainder of the department heads, and it sort of rankles him to see work coming into the shop that was caused through ignorance, neglect or carelessness. However, he said, it doesn't matter what caused the trouble, the master mechanic should recognize the fact that it must be fixed to keep the work running in the best way, and should be willing to subordinate personalities and temper to that end.

The overseer, it was brought out, should by all means

BETTER BELTED MACHINES

Your spinning frames, cards, combs or looms may be made more efficient by using

RHOADS LIGHT DOUBLE TANNATE BELTS

We suggest Light Doubles in place of heavy singles because they are of more even thickness, almost as pliable, and may be used in narrower widths.

We suggest Light Double Tannate in place of regular weight oak-doubles because they are more flexible, may be run on smaller pulleys; and the Light Tannates will surpass the oak in grip. Slip lessens output.

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THE 100% *Lubricant* NEVER DRIPS

Feeds gradually, without waste. None spatters on floor or fabric. For almost 60 years textile plant engineers have found Albany Grease the ideal lubricant. Sold in all size cans and barrels—all consistencies.

Avoid substitutes. Always look for the Albany Grease Trade Mark.

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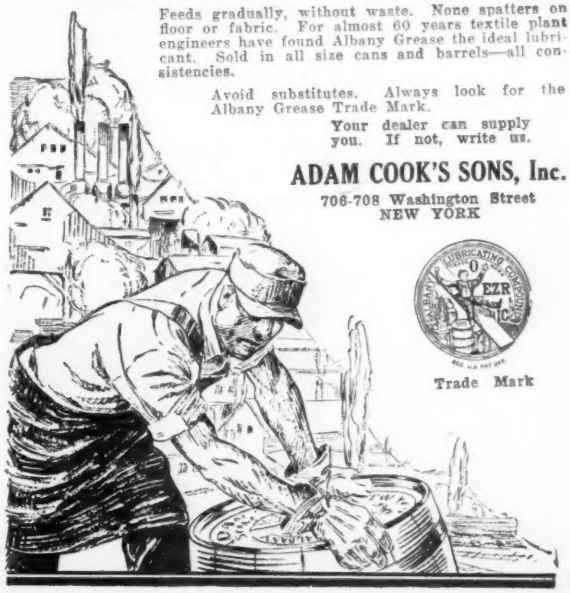

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selling direct or through agents can use the services of this Bank to enable them to distribute their merchandise for cash—and thereby eliminate the credit risk.

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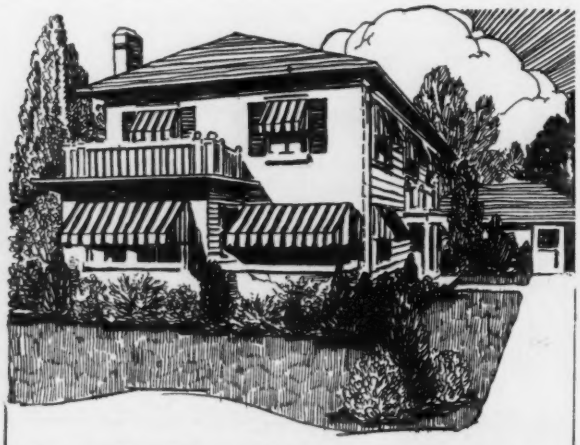

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A GROUP of evergreens or shrubs at the foundation give a finished appearance and turn an ordinary house into a home. You instinctively know that people living in a house surrounded by flowering shrubs, roses and evergreens are contented, friendly and well worth knowing.

WHY not frame your house in a foundation planting? Our representative will be in your vicinity soon. He will help you make the plans, suggest the best trees and shrubs to use: our men will plant them, too, if you desire. A one-year guarantee goes with each job—trees and shrubs dying within that time will be replaced free at the nursery.

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They are softer than the average grease so begin to lubricate as soon as there is motion. Most greases begin to lubricate only after the parts warm up—that is they have to be thawed out by the frictional heat. Dixon's Cup Greases are all thawed out and ready to function—they flow with the revolving parts. They also keep the surfaces from metal contact.

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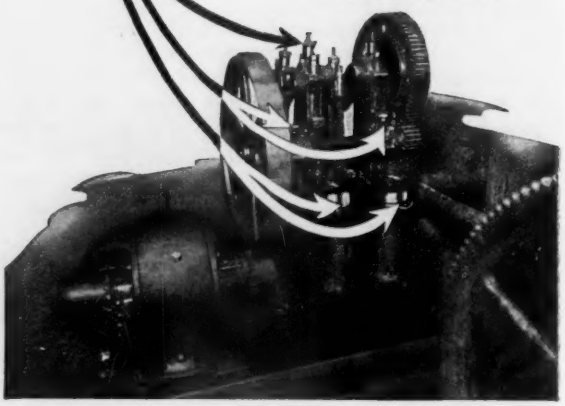

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In universal use by thousands of manufacturers and shippers.

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SEVERAL NEW FEATURES

have been added to the "1912" cloth Cutting, Folding and Winding Machine which add at least 50 per cent to its value to YOU.

It will cut your cloth, fold the edges—roll it up and give you an exact measurement of every piece of cloth going through the machine.

It saves time, labor, machines and cloth.

YOU ONLY NEED ONE MACHINE where before it required two and you get an extra strip from each bolt of cloth.

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use diplomacy in his contacts with the master mechanic, and approach him in the spirit of one man talking with another. Between the two, it should be a spirit of "give and take" and of cooperation for the good of the whole. Among those discussing this were Messrs. Coman, Moore, Chappell, Poole, Bolton and Edmiston. Mr. Towers brought out the point that whenever two overseers, or an overseer and a master mechanic reach the point of hard feeling, "the blame should be placed on the superintendent for not settling the matter before it reached that stage."

Spraying Oil on Raw Cotton.

The final topic taken up was the spraying of oil on cotton by the Breton Minerol process, which had been held over from the Friday evening session to await the arrival of Everett H. Hinckley, technical executive of the Borne, Scrymser Company, which developed the process. Dr. Hinckley was introduced by Mr. Philip. He briefly recounted the history of the development, saying in part:

"We started about three years ago with the idea that cotton needed lubrication because of the static conditions set up in the mill, and you all know what static is. That was our idea, to prevent its occurrence. You are all familiar with humidity, which is to discharge static, but we thought, why not stop it or prevent it.

"We carried on a number of tests which were disappointing because we found that we were making it sticky. We finally found that success lay within rather narrow percentages of oil and a particular kind of oil. On wool you can put any proportion and almost any kind of oil, but on cotton we found out quite differently, and when we learned that point we commenced to make some progress, and went into several mills in Georgia to try it out, and along by last March we had put some ten mills in Georgia on it when the discussion came up in Atlanta. Since then the process has spread very widely, and there are mills in England and Germany that have the process in operation, and in South America in Brazil, Peru, United States of Columbia, and we will have some in India, China and Japan. They all say that this is just what they have been looking for, and I think you will agree with me that it is quite an improvement in cotton spinning."

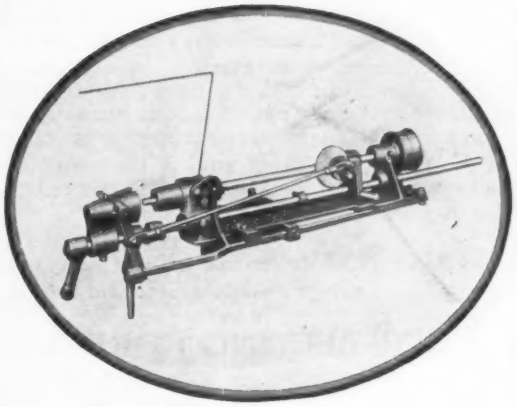
Mr. Tatum asked what about those people who had not been successful with it. Dr. Hinckley replied that it was probably due to over-enthusiasm in trying to use too great a percentage of oil. The nature of the cotton and the product being made determines the amount of oil to use, he said, but it was customary to start off with a fraction of one per cent based on the weight of the laps doffed from the picker, not the cotton going into it.

Someone inquired as to whether any changes in machine settings are necessary after applying the oil.

The oiled fiber, explained Dr. Hinckley, is really of the same length as before, but it lies flatter, and is softer so that the rolls in the drawing processes probably will be opened up to accommodate the fiber, and the cards properly ground.

Mr. Moore asked what kind of an oil it was, and Dr. Hinckley replied that "it is a proprietary oil, which we call Breton Minerol E. It is a mineral oil which has been processed so that it will be perfectly emulsifiable in water and thus enable it to be used on goods for dyeing, bleaching and finishing without any difficulty setting in. We also find that we have accomplished another object. We have an oil which will accommodate itself to the humidity condi-

LAZENBY FILLING WINDERS



THE filling produced on the Winder above contains 100% to 200% more yarn than a spinning frame can put into the shuttle. This means fewer shuttle changes, less waste and increased loom production.

The action of winding serves as an inspection to the yarn and spinning defects are discovered before they get into the cloth. Spinning is more flexible and spinning production increased. Better cloth is produced because the filling is put onto the bobbin under even tension, and it comes off the same way.

These are a few reasons why you should investigate LAZENBY Winders for your work. A testwind Report will put all the fasts before you, and such a Report costs nothing.

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The Result of Careful Study and Long Experiment

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If the experience of actual users is an indication of its value—and who is better qualified to judge?—then once you have used SLIP-NOT Leather Belting for power transmission you will use no other.

There are a number of excellent reasons for this. SLIP-NOT Leather Belting presents you with a perfect pulley surface, hence maximum power transmission; it does not slip; it is durable, flexible and wear-resisting; its use means less wear on bearings; it is waterproof.

SLIP-NOT, let us remind you, is the result of years of intensive study of the application of leather belting to power transmission needs. *Nothing takes its place.*

Any **SLIP-NOT** *dealer can tell you many other interesting things about this splendid belting*

SLIP-NOT BELTING CORPORATION
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The Textile Center of the South

Write for copy of Dependable Facts of Greenville. It gives the whole story in a nut shell.

Mr. Manufacturer, Mr. Capitalist, Mr. Builder, and Mr. Business Man, here's an ideal industrial site for you. Records of rapid development of textile mills in the South in the past 40 years show the South is fast becoming the textile center of the nation—Greenville being in the center of this great industrial wheel, with 17 cotton mills in the city and 22 in the country—is the logical place for the new mill or branch plant.

In locating a new mill one great question is—good transportation facilities. Greenville offers transportation facilities in the way of five railroads, covering all four directions of the compass.

Also—Greenville offers the prospective mill owner an unlimited supply of skilled labor, power, and raw products.

Greenville—"Textile Center of the South"—is the home of the largest complete cotton mill in the world, and the largest dye plant and bleachery in the world.

No matter what industrial or commercial activity you wish to bring here, just call on the Industrial Bureau of the Chamber of Commerce and they will assist you in every way possible.

GREENVILLE CHAMBER OF COMMERCE

Greenville, S. C.

tions of the mill and take up gradually a certain amount of water.

"We have some tests made by uninterested parties which give us some satisfactory reports. They state that when the cotton was run through the processes of cleaning under varying humidities, without the oil the cotton gradually responded to the humidity conditions. The oiled cotton slowly gained but did not jump around as the humidity increased or decreased. He added that by the time the tests reached the spinning, the oiled cotton showed a half per cent more regain than the unoiled yarn.

After the oil discussion, the meeting adjourned to the Hotel Simpson, where a delightful and palatable luncheon was served. Colyar S. Tatum, past president, acted as toastmaster. The only speaker was Carl Pool, secretary-treasurer of the Pool Mfg. Company, Sherman, Texas, who discussed foremanship relations and training. After this address, the meeting was opened to select a place for the annual convention in May, and invitations were received from West, Dallas, and Mexia. After a close vote, Mexia was selected. The luncheon concluded the convention.

The Textle Diversification Dinner.

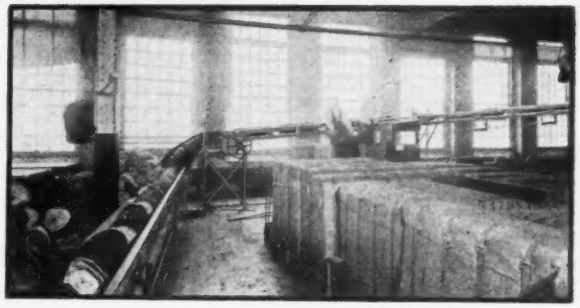
(*Continued from page* 44.)

facturers' Association, was the next speaker. Mr. Vereen brought greetings from Georgia and congratulated the Carolina manufacturers upon their tremendous strides in textile manufacture. He gave hearty approval to the diversification movement, and declared the organization which he heads ready to cooperate at all times in any project for the advancement of the industry.

The next feature was a fashion demonstration staged by several of the models of the Made-in-Carolinas exposition.

B. E. Geer, Greenville, S. C., who was scheduled as the next speaker, was not able to attend, and the toastmaster called upon S. C. Lamport, of Lamport & Co., New York City, whose urge to the manufacturers was that they encourage a diversity of distribution, going more strongly after the export trade. The heads of the institutions should attend to this business personally, he declared, adding that they would find an effective organization of commercial assistance all over the world conducted by the Department of Commerce.

J. E. Sirrine, president of J. E. Sirrine & Company, Greenville, S. C., spoke briefly as the next feature. He emphasized what Mr. Price had said regarding the necessity of diversification being creative and not imitative. "It doesn't mean merely changing your product over to that of your neighbor's," he explained. There should be some means for keeping in touch with the market for different goods, stated Mr. Sirrine, congratulating the National Council upon the efforts being made toward disseminating statistics. In his opinion, the industry is not over-developed, as, he explained, a surplus capacity is necessary in any industry in order for it to be regulated. "You cannot wait for customers to come to you—that isn't giving service. You have got to have a surplus capacity, just as Mr. Lee must have surplus power generated. If he didn't have it, your mills would shut down the first time everybody started running at once. You have got it, and do not be afraid of it. I think the biggest thing you can do is to get information about your own business, not only what lines are in style, but also to seek out new lines. The textile indus-



Conveyer Insurance for Your Plant

HAVING decided that there is a job in your textile mill for a gravity conveyer sytsem, make sure of this:

that what you put into equipment will come back to you, with interest, in years of profitable service.

Textile mill men who have put Mathews Conveyers to work in their plants have found them immediately and permanently profitable.

Before buying, let a Mathews representative tell you the why of Mathews Conveyer quality. It's built into roller, bearing, frame, and every construction detail.

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The Mathews Roller

Here is one end of a roller from a Mathews Gravity Conveyer.
Note the rounded end. Compare the neat "mechanical" construction of this roller with other carriers of this type. The end of the tube is rounded down over the housing for the ball bearing making it impossible for the housing to get loose or come out. The end of the axle is slotted to drop into the frame, serving as a brace, making it more rigid, and eliminating cotter pins.

A Partial List of Textile Plants Using Mathews Conveyers.

Saylesville Finishing Plant, Inc.
Burson Knitting Co.
Nashua Mfg. Co.
Arnold Print Works
Cherry Cotton Mills
Standard Coosa Thatcher.
Crystal Springs Bleacheries
Aberfoyle Mfg. Co.
Proximity Mfg. Co.
Saylesville Bleacheries, Inc.
American Thread Co.
Pacific Mills
Northern Waste Co.
Palmer Mill
Worcester Woolen Mill Co.

MATHEWS
Conveyer Systems

try is the most loosely conducted large industry in the country, and has less reliable information available, and yet the individual plants are the most efficient. What is the matter? The matter is that you have not realized your interdependence with each other. You are beginning to do so, and when you do so fully, you will solve many of your problems. You will find new uses for cotton cloth. If there has been any studied attempt along that line I have not heard of it; that which has been done has been only sporadic. If this dinner can bring to your mind firmly that there is no one panacea, it will have done a great good. I do not believe that the South lacks technical skill or technical plants, our difficulty is not technical, our difficulty is largely commercial. We cannot diversify until we learn what we must do, and it seems to me that is the thing you must find out. When you do that, I think it will be a very simple matter."

The final speaker of the occasion was George S. Harris, president of the Exposition Cotton Mills, Atlanta, Ga., and president of the Cotton Manufacturers' Association of Georgia. Mr. Harris pointed out that the lack of cooperation, and the resultant "choking of your competitor," is one of the greatest present-day difficulties in the grey goods market. He stated that in Georgia he was trying to preach cooperation from the standpoint that everyone would profit by it. With regard to diversification, he urged the men "not to diversify for the sake of diversification," as that would bring them into a still more hazardous game than at present, where, he declared, the speculative feature has become an evil. As a concrete suggestion in connection with diversified products, he said cost accounting should be given first consideration. "I have seen sales made that somebody made without any idea of cost," he said. "We generally have not given cost accounting sufficient consideration. Many mills are operating without adequate cost accounting, and this is serving not only to injure that particular mill but it is also making a market that its neighbor will be forced to follow." During the past year, he stated, he has made over 100 various constructions, and that this period has been the most successful in his own experience and that of the mill he operates. He attributed this success largely to the diversified product and to knowing the costs, but, he added, "don't you fellows go to making my goods."

In conclusion, Mr. Harris suggested the possibility of bringing the markets South, as a step toward ultimate diversification. "There is no reason why Charlotte cannot develop into a cotton goods market equal to any of the others," he declared as an illustration.

Following Mr. Harris' remarks the toastmaster declared adjournment.

The Made-in-Carolinas Exposition.

Exhibits of textile fabrics predominated the Made-in-Carolinas Exposition, held at the Exposition Building, Charlotte, from September 21 to October 3, and in conjunction with which the Textile Diversification Dinner was held.

There was a wide range of textile products on display, and also several exhibits of products for textile mills.

In line with the theme of diversification, the textile exhibits emphasized the finer lines of goods, especially those in which artificial silk and pure silk are used as a component part of the construction. Attractive displays from some of the leading fine goods mills of the South were included in the exhibition.

The management of the exhibition had arranged a splendid and entertaining program in conjunction with the show. Orchestra numbers, together with programs from well-known singers, made an interesting attraction for the visitors. Fashion shows were held in the auditorium of the building during the week.

Among the more important textile exhibits at the show were the following:

Judson Mills, Greenville, S. C., in conjunction with the Art Cloth Mills, Lowell, N. C., displayed an extensive line of fine cotton goods, artificial and pure silk mixtures, etc.

Rosemary Mfg. Co., Rosemary, N. C., and Roanoke Manufacturing Co., Roanoke Rapids, N. C., showed their lines of "Basco" linenized goods, damasks, flannels, etc.

Charlotte Knitting Company, Charlotte, N. C., displayed a variegated line of ladies' and men's hosiery, including full-fashioned and circular knit styles. Several circular knitting machines were in operation in the booth.

Dress ginghams were featured by the Aurora Mills, Burlington, N. C.

Alexander Manufacturing Co., Forest City, N. C., showed a complete line of their trade-marked wide sheeting products.

Stonecutter and Cleghorn Mills, Spindale, N. C., were featuring their lustro-fast artificial silk fabrics and ginghams.

American Yarn & Processing Company, Mount Holly, N. C., maintained reception space and exhibited their line of combed and mercerized yarns.

Highland Park Manufacturing Company, Charlotte, N. C., displayed their well-known line of ginghams.

Cascade Mills, Mooresville, N. C., and the Locke Cotton Mills, Concord, N. C., displayed an attractive line of various cotton goods.

Cone Export & Commission Company, Stockton Commission Co., and Joshua L. Bailey & Company were among the commission houses maintaining exhibits of southern-made goods.

STATEMENT

of the ownership, management, circulation, etc., required by the act of Congress of August 24, 1912, of COTTON, published monthly at Dalton, Ga., for October 1st, 1925.

State of Georgia, County of Fulton.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared W. J. Rooke, who, having been duly sworn according to law, deposes and says that he is the Business Manager of COTTON, and that the following is to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulatiops, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, L. L. Arnold, Atlanta, Ga.; Business Manager, W. J. Rooke, Atlanta, Ga.

2. That the owners are: W. R. C. Smith, Atlanta, Ga.; E. P. Smith, Atlanta, Ga.; W. S. Cushion, Cleveland, O.; O. A. Sharpless, Atlanta, Ga.; J. C. Martin, Atlanta, Ga.; H. H. Kelley, Atlanta, Ga.; W. J. Rooke, Atlanta, Ga.; T. W. McAllister, Atlanta, Ga.; W. O. Rogers, Atlanta, Ga.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or any other security holders are. None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs containing statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. W. J. ROOKE, Bus. Mgr.

Sworn to and subscribed before me this 1st day of Octobsr, 1925.

(Seal) E. L. PHILPOT, Notary Public.

My commission expires March 13, 1927.

Knitting Section

In step with the market

B-Vertical Floating Striping Machine

B-Vertical Floating Striper and Dot Machine

***B-6 Machine**

***B-7 Machine**

THESE machines offer a variety of styles and colors to meet all demands.

Simple patterns may be produced on these machines as well as the more comprehensive styles containing a multiplicity of colors, checks, dots, etc., incorporating in one machine the advantages of all these desirable features.

*Models B-6 and B-7

These machines are built with six and seven yarn feeding fingers, respectively. These machines are of floating vertical stripe design.

The vertical stripes are produced by groups of knitting needles knitting with one or two yarns used for plaiting, thus producing a perfectly clear and positive vertical stripe of a greater width than can be produced with reverse plaiting needles, particularly when using worsteds or soft yarns on coarses gauges.

The vertical stripes can be located throughout the circumference of the stocking as desired, by the use of jacks under the needles to produce the vertical stripe of the width desired.

These machines will produce repeated horizontal stripe patterns of any design up to 48 courses, if two or more course width stripes are desired. Repeated patterns up to 24 courses can be made if single course stripes are incorporated in the pattern.

The vertical striping attachment on these machines is so arranged that when making plaids or checked patterns small squares can be inserted in the middle of the check or vertical stripe.

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We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Reclaiming Waste Yarn.

EDITOR COTTON:

I am writing to ask the readers of "Knitting Kinks" for the most effective and practical manner of saving the left-overs of different yarns which result from knitting, and are on this account made useless. Such waste accumulates periodically, and at the present we have a large quantity of it which we would like to utilize in some form. We suppose this can be unraveled and, if it can be, we would thank you greatly if you could secure some recommendations of machinery for unraveling, or at least give us a suggestion as to what we should do with these left-overs. We have tried to unravel them in balls by hand and have found that, besides being very, very slow, it is badly done, and the tension, as a result of the unraveling, causes very uneven knitting, especially with artificial silk.

CONTRIBUTOR No. 1532.

Setting the Sinkers on B-5 Machines.

EDITOR COTTON:

Replying to "R. M. (Ga.)" in the September number of COTTON who asks for information on the adjustment of sinker cams on B-5 Scott and Williams machines, I would suggest, for the old type sinker, 15/64ths of an inch, and for the late spring sinker, used on all the new Scott and Williams machines, 1/8 of an inch. This measurement should be from the flange of the top sinker ring to the deepest point of sinker cam, near the angle of cam. The bumpers in both cases should be so adjusted as to have two sinkers all the way in when the rising needle comes to the top of the brass. This assures good protection while the stitch is being formed.

There are numerous things that will cause bad gores, and press-offs in heels and toes; for instance, worn stitch cams, excessive tension on the heel yarn, crowding needles with too heavy yarn, knitting too tight, and defective needles, such as sprung hooks, bent latches and loose rivets.

For better plaiting it is good mill practice to run the body yarn or silk through a disc tension as near the knitting point as possible, using as much tension as possible.

It will be found that double sole yarn on a short cone is better for plaiting. The shorter the cone the less drag the yarn has in coming off. P. H. H. (TENN.)

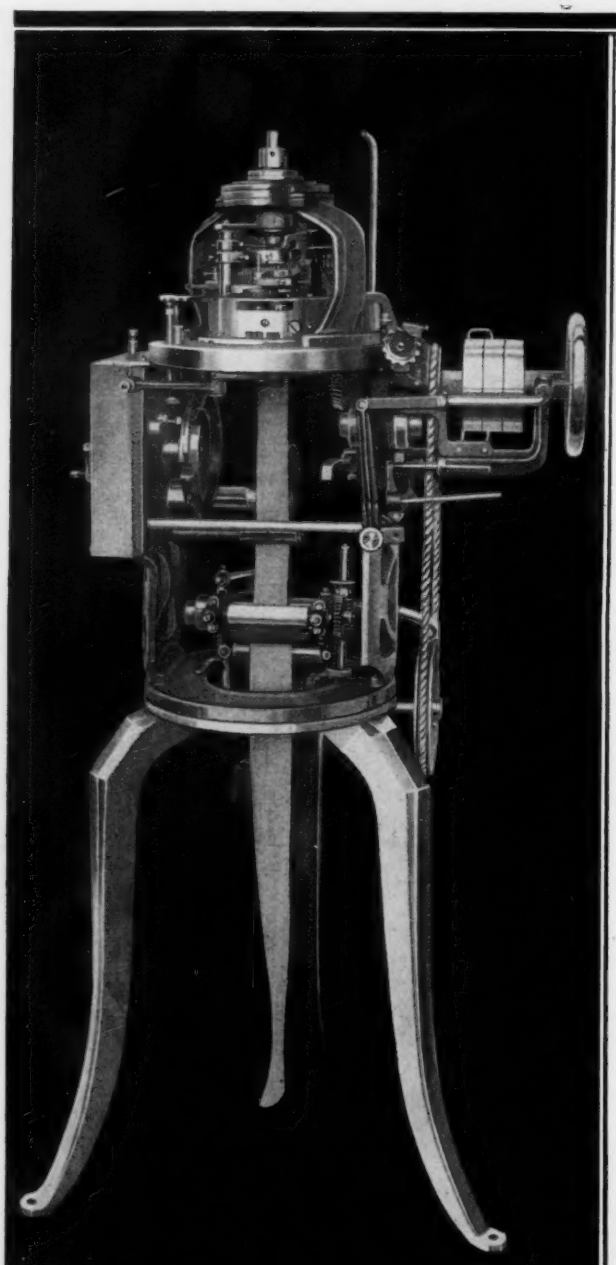
EDITOR COTTON:

I notice "R. M. (Ga.)" is having trouble with his 220-needle B 5 machines cutting holes in the gore and also cutting out in the heel and toe. Both of these could come from the same cause, and I think he has come near to guessing it when he mentions the setting of the sinker cams. This I consider the most important question, taking with it its relations, including the stitch cams, sinker cams and bunter screws, that concerns the making of hosiery on a circular latch-needle machine. There are, I observe, many men whom the war turned out as fixers who know little and care little about this most important of all adjustments. It seems that most of them care only to grind on the face of a stitch cam, no matter where or how much, or to push in on the sinker cams oftentimes without stopping to reason why, or to run in or out on the bunter screws in the same careless manner. This is not fixing the machines, it is only "getting by," and is more often than not a failure in that it often gets one into further complications. This, however, does not answer "R. M.'s" question.

I would suggest that he take off the stitch cam bracket and see that the stitch cams are exactly the same length from the bottom of the bracket to the extreme bottom point of the stitch cam. Then see that the sinkers are adjusted as follows: Set the sinker cams so that the extreme throat of the sinker (when pushed in its limit on the point of the sinker cam) comes exactly even with the back of the needles.

So far so good, but we've come to the hardest part to explain. I could show my neighbor much easier than I can express it on paper. Set the bunter screws (I believe Scott & Williams call them set screws) so that when the needle that is shedding the stitch comes exactly down level with the sinker and brass ring, there will be about three or four or five sinkers between it and where the sinkers are pushed in the extreme limit by the sinker cam. This applies to both right and left sides, and they should be set as near the same as possible. This will give the same draw on both sides and save many worries.

After these adjustments are made there will be no need for other adjustments of these until there is wearing of either the stitch cam or the sinker cam, which comes very slowly if the cams are properly made from good steel and carefully tempered. If there is further trouble he should



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see that the heel and toe yarn tension is not too strong. This tension should only be strong enough to prevent the slipping of the yarn in the plates. The take-up should only be strong enough to pull up the slack in the yarn. Often there is slipping of the heel yarn that is caused by small particles of lint or foreign matter between the tension plates, which should be kept cleaned instead of tightening on the tensions and take-up. If these holes or cut-outs in the heel and toe come at the same place he should look for nicks or loose rivets or rough top sinkers. The sinkers are often cut and rendered not only useless but ruined by bent latches or split cheeks or hooks that may be twisted sidewise. As to the sole yarn plaiting, he ought to be able to manipulate the tensions so it will plait nearly perfect by tightening or loosening the yarn as the case may be.

P. T. E. (N. C.)

EDITOR COTTON:

In response to "R. M. (Ga.)," who asked in September COTTON regarding second-hand Scott & Williams B-5 220-needle machines cutting holes in the gore and cutting out in the heel and toe, and also about difficulty in plaiting, I will first take up the former trouble—cutting out.

The main causes of this are the sinker cams, both right and left, not being set right, also the sinker cap being set either around too far or not far enough. The sinker cams should be set so that the throat of the sinker comes to the back of the needle, which will be slightly over ⅛-inch inside the bore of the sinker cap, and the sinker cam should be adjusted circumferentially by means of the bumper screws so that the sinkers are just all the way inward when the hook of the needle reaches the bottom of the sinker throat as the needle rises.

The fact that "R. M.'s" machines are second hand, would make it wise to look at the stitch cams, both left and right, to see whether any has been ground off the bottom or sides of the cams. These stitch cams as they come from Scott & Williams are of the correct length and size, and should measure from the bottom point of the stitch cam to the bottom of the stitch cam bracket, 13/16-inch. This is of utmost importance to get results.

I have found it a great help to concave the stitch cams slightly at the points indicated by the arrows in the accompanying illustration, being careful not to touch the bottom of the cams as this will throw them off gauge. This procedure takes the strain from the stitch as it is being formed.

Are the needles straight? I suggest putting the machine on the heel and toe and raising the rest of the short butts. A needle slightly bent to one side or bent forward or backward too much will cause this trouble. Rough sinkers or bent sinkers would be another cause. The outside or inside sinker rings being loose from the cylinder would be another.

Too tight a spring on the take-up or too much tension on the tension device will cause large cut-outs in the heel and toe. If this is the trouble a lighter spring should be used.

It should be noticed if the side cams are nicked up. Are the loops riding up on the needles when on the heel and toe? This results in the loops being strained when they are brought back into action, causing cut-outs in the gore. The cause of this is when the butts of the short needles are thrown out of action, they ride over the top of the back center cam, but are drawn down slightly, as they pass underneath the down pick cam. This up and down motion of the butts of the needles gradually works the fabric up on the needles, as stated. The cam giving this trouble should be located, so that both heights can be made alike.

With reference to the plaiting trouble, where he is having trouble getting the double sole to plait on the edges where the double sole yarn goes in and out, the most important thing is the yarn tension. Plenty of tension should be put on the rayon, with very little tension, if any at all, on the cotton, in order to get results. The yarn tension for the rayon should be adjusted as close to the needles as possible.

Or the fingers of the rayon may be too short, causing the rayon to get twisted with the cotton at the feeding point.

Or the throat plate may be worn, bringing the thread too far away from the hooks of the needles.

The needles must be straight.

This plaiting trouble at times is very difficult to fix. I have stopped this at times by bending the medium needles backward or forward slightly.

RYMI.

Winding Dyed Artificial Silk

EDITOR COTTON:

Replying to the inquiry of "S. T. (Pa.)" relative to the winding of dyed artificial silk, I suggest that he try the following method: After the silk has been dyed, extract it as nearly dry as possible. Then remove the silk from the bags in which it was dyed, and hang it on long smooth poles or ropes, to let it thoroughly dry before attempting to wind it. After it has become perfectly dry, wind it onto the bobbins, and have enough tension on the thread to insure a hard-wound package; then balloon the thread when it is being knitted so that friction will not occur on the thread by dragging around the empty part of the bobbin.

This is the way we wind our dyed artificial silk that we use for testing plaiting, and I presume that is what "S. T." is doing.

In connection with the knitting of the artificial silk, I will state that we use the artificial silk thread stand which was shown on page 647 of the April, 1925, issue of COTTON, and which was invented by Lester J. Hill, of Lexington, N. C. I believe one of these stands would greatly aid "S. T." in connection with his knitting of this artificial silk, and if he wishes, I shall be very glad to send him one for trial if he will advise me. I am sure he would like it.

A. B. C. (N. C.)

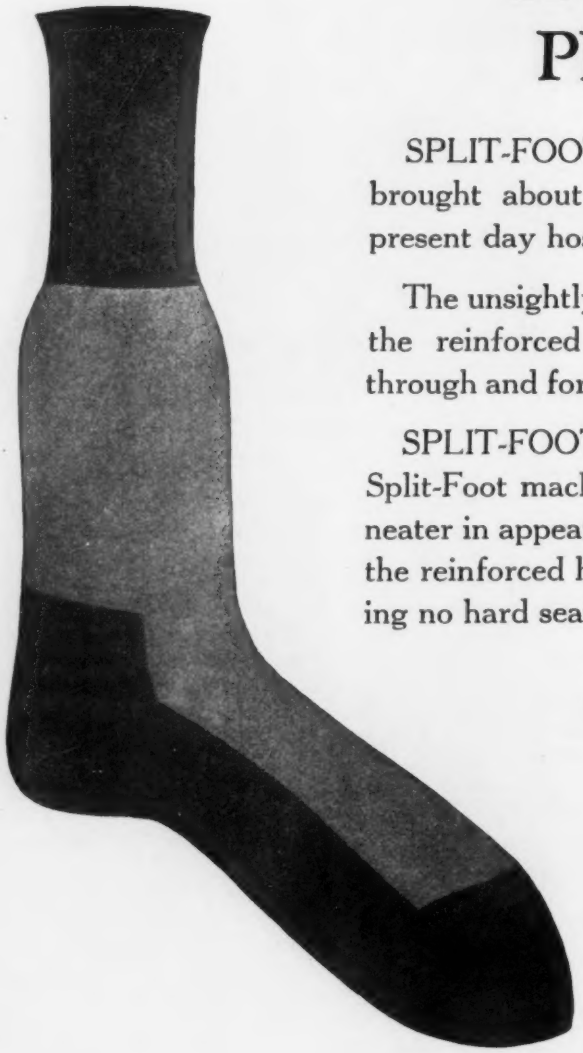
Silk Scroop on Hosiery.

EDITOR COTTON:

How to secure a first-class formula for a scroop on seamless cotton hosiery, both plain and mercerized, may be of interest to some of the readers of the "Knitting Kinks" department of COTTON. I will say, there are several ways in which scroop can be given, and I will mention one or two of them.

The "BANNER"

SPLIT-FOOT PRODUCT



SPLIT-FOOT HOSIERY, the new creation, brought about by the main disadvantage in present day hosiery, namely:

The unsightly inside fringe of splicing ends in the reinforced portion which tends to slip through and form whiskers on the outside.

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An especially strong and durable scroop on cotton is said to be obtained if the goods are entered, on leaving the soap bath, into a cold bath containing 2½ grammes of lactic or tartaric acid per quart of water and worked therein for fifteen minutes, centrifugeing and drying. An alternative acid bath contains per quart 2½ grammes of lactic acid, one of glue and 1½ of potato starch. The scroop is still better if the cotton has a preliminary mordanting with from two to three per cent of tannin and 1 to 1½ per cent of antimony salt, after dyeing, in the case of dyed cotton to be scrooped.

The following is a process for imparting a fast scroop to plain or mercerized cotton goods, yarns, hosiery, etc., often used by the writer. This refers to both fast blacks or colors. This scroop possesses the advantage of adhering to the fabric to the extent that the scroop effect is not affected by steaming the material under pressure. The finished material after being stacked up for an indefinite period will retain the scroop and the high finish is imparted in this manner: In a pail holding two or three gallons of water add 1½ pounds of citroline developer. Heat this up, bring to a boil and then add it to the bath, after which the latter can be heated up to 120 F. The dyed hosiery which has been previously well washed is immersed in the bath. It is processed for a few minutes and there is then added two pounds of citrolene. The hosiery is processed further for about ten minutes, lifted hydro-extracted and dried. The use of olive oil soap in connection with this process is not required, as the citrolene developer acts both as a cleansing agent in the place of the olive oil soap in connection with the scrooping qualities.

Formic acid is also used for producing a silk like scroop on mercerized cotton. In some cases tartaric acid is used for impregnating mercerized cotton dyed with the substantive dyestuffs in order to produce the scroop characteristic of silk. It is generally used in conjunction with sodium acetate. The dyed yarn is first treated to a solution containing from 1 to 4 pounds of tartaric acid and 5 to 10 pounds of sodium acetate per 100 gallons, hydro- extracted and dried. Five to 10 pounds of acetic acid may be used in place of tartaric acid.

The following method for treating (scrooping) dyed yarn which has not been boiled and bleached previous to dyeing is recommended by L. Cassella and Co.:

The yarn (or hosiery), after dyeing and hydro-extracting, is treated for 20 minutes in a bath at 86 degrees to 104 degrees F., containing

1½ per cent starch
1½ per cent cocoa butter
½ per cent tannic acid
} calculated on the weight of the yarn.

The starch is stirred up in the usual manner with water boiled up with the cocoa butter and added to the bath through a sieve; the tannic acid is dissolved separately and then added. The yarn (or hosiery) is turned a few times in this, hydro-extracted and soaped in a warm bath containing: 7 to 8 per cent Marseilles soap and 1 per cent starch calculated on the weight of the yarn. It is now again hydro-extracted and treated for 10 minutes in a cold bath containing per 100 gallons, 3 pounds tartaric acid and 10 pounds sodium acetate. The goods are finally hydro-extracted and dried without rinsing, as all are.

W. B. (ME.)

This is your department. Use it!

Degumming Silk Hose.

EDITOR COTTON:

I notice the question of "Contributor No. 1425" in the September issue regarding the degumming of silk for dyeing. I take it for granted that his experience is one in which the silk hosiery in question was first degummed and then dyed, the latter process being in a separate operation. There is now being used a combination process of degumming and dyeing in one bath, and in one operation, but this is hardly to be recommended in a case where the dyeing of silk is rather a new experience, as in the present instance.

The soap is an important factor if proper results are to be secured. The soap mentioned by the inquirer (Monople soap) is not known to the writer. If it contains no free alkali and very little alkali of any other nature, it is suitable. Leaders in silk hosiery dyeing are partial to good grades of "olive oil" soaps, but there are many other brands that are just as good. There are now on the market numerous high quality "degumming oils," and I know of many instances where splendid results have been secured with them.

The water supply and the condition of the water have quite a bearing on the soap or degumming oil which will give the best results. It is for that reason that I suggest that he put his soap or oil question before one of the many reputable dealers or manufacturers for suggestions as to the product that will work best in connection with his water.

To judge just what went wrong with his first lot would require the inspection of a sample. It would, however, appear, from what he says, that the per cent of soap he uses (20 per cent) is greater than necessary. The usual amount of soap used for degumming is from 10 to 12 per cent. This means that for every 100 pounds of silk hosiery (including the weight of the cotton heels, toes and tops) the dyer calculates to use 10 to 12 pounds of soap. If soft water is used the quantity of soap needed can be still further reduced.

The boil-off or degumming bath is best made up as follows: The water should be at about 150 degrees F. To this add the proper quantity of soap (or degumming oil) and if soap is used ½ per cent of soda ash or silicate of soda may be added. Both the soap and the soda ash or silicate should be completely dissolved. Then enter the goods, making certain that the stockings have been "shaken" out before they are entered into the degumming bath. By "shaken out" I mean that the bundles as they come from the knitting room have been opened and that the stockings have been separated. A great deal of trouble can develop from careless shaking out because two stockings that get into the degumming bath with the entire surfaces of the two hose flat together—that is, in the same condition as when paired for packing—will not properly degum.

If the inquirer is using a rotary machine for degumming, he should start his cylinder to revolve. On the paddle machine the paddle may be kept running while the goods are being entered. In an open tub or vat the operator should stir the goods with a pole or stick so that every part of the stocking will become uniformly "wet out." After the wetting out in the degumming bath, which takes but a few minutes, turn on the steam and bring the bath

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up as quickly as possible. It usually takes from forty-five minutes to one hour to degum a lot of silk hosiery. The time depends on the silk itself, also on the amount of silk in the stocking. The heavier the silk and the larger the amount of silk in the hosiery, the longer it takes to degum them. I do not recommend actual boiling temperature, yet it is found that the bath kept at around 205 to 210 degrees F. gives best results without in the least harming the silk. A sample should be taken after 30 minutes and rinsed in warm water before boarding. Then wring it and board it. If all of the gum has been removed the dry stocking should be soft and flexible. If it still contains gum, (and the splice should be noticed particularly) the stocking is harsh, which indicates that it needs still further degumming.

A very important part of the degumming process is the rinsing off of the goods following the degumming bath. Assuming that the stockings have been properly degummed, the operator should now run off the degumming bath. The first rinse water should be warm—that is, at least 120 degrees F., and if water around 150 degrees is available I say use it by all means. The goods should be agitated in the rinse water for at least ten minutes. Then the bath is run off and a second warm rinse of ten minutes is given. The third rinse can be cold or with the water at around 80 or 90 degrees F. The reason why the first two rinses should be hot is that if cold water is run into the goods which have just been degummed, the gum, of which a considerable quantity is still on the surface of the goods, becomes hard and sticks to the hose, causing in some cases just the difficulty that the inquirer mentions—that is, a harsh feeling stocking or portions of the stocking which are harsh. Following the proper rinsing the goods should be "whizzed" or hydro-extracted, then shaken out, and then they are ready for the dyeing operation.

While he did not explain his dyeing process, it is possible that he uses a softening oil in the dyebath. I suggest that not over one per cent of any softening oil be used on fancy colors—also known as light shades—until such a time as he has made certain that the harsh feeling of the stocking was the result of improper degumming. Too much soap or too much oil in the dyebath may readily cause the condition he has described.

If the stocking is properly degummed and properly dyed without an excess of oil remaining in the goods, the ten pounds of steam pressure on his forms will be found all right. The forms never make a stocking harsh unless an excess of soap or oil is left in the stockings from the dyebath. CONTRIBUTOR NO. 1442.

Do Men or Women Make the Best Knitters?

EDITOR COTTON:

Having been asked the question, "Who makes the best knitters?" and after reading two articles on the subject, I am going to offer my opinion, and the readers of COTTON can judge as to whether or not it is worth anything.

First. I hope this article does not get "K. L. J. (Ga.)" and "H. O. S. (Ga.)" all "het up" like my article on knitting machine fixing did with "J. L. H. (N. C.)." Whew! ain't we got fun! Well, he who gets hit hardest is the one who gives expression to his sentiments in the loudest tone of voice.

Judging from "K. L. J.'s" letter, he is doing transfer work only. If so, I am going to disagree with him, as I honestly believe that women make better transfer knitters than do men.:

"H. O. S." said a mouthful when he made the statement that the women keep their machines cleaner than does the average man. The average man or boy knitter is too rough on his machine to make a good transfer knitter. In other words, he sets his transfer ring down on the needles and pushes it down so hard that he keeps the needles out of line. If there is a stitch left off he will grab a stitch hook and pick up a bunch of work and slip over the needle where the stitch is off. This knot will make a second when the machine is started. Women have smaller hands and a lighter touch, which enables them to transfer much more easily and pick up drop stitches cleaner than can the average man or boy knitter.

"K. L. J. (Ga.)" says he uses women to do the topping and men to transfer the top to the machine. Now does it not seem plausible that if the women have proved that their hands are better adapted to putting the stitches on the transfer points that they would be the logical operators to put these same stitches on the needles? Their hands are smaller, which enables them to run them inside the hose and inspect the work much faster, than can the man, when it comes from the machine.

When I leave transfer work I also leave the women and girls, as I prefer men and boys on string and automatic work. Women are not physically able to do this class of work long, if they could do it as well as the men. Put a woman to walking up and down a line of Model K machines and she will break down in a very short time. No woman will be able to run as many Model K machines as a man can run, for she is not strong enough. Very few women can set the chain on a knitting machine, and this is as important as keeping yarn on the machine in knitting ladies' hose. A man can set this chain much faster than can a woman, even if she knew how. Getting the chain set and getting the machine going means more stockings per machine, which is what we are all after.

Well, I 'spect I have said more than I should, but I was just "rearin'" to go, and as I had been asked to express my opinion, I "jest nachally" had to say something. I hope that you knitters who read this and get "red-headed" will climb on the editor, as he is responsible.

Now come on, you "darned" lazy "cusses." Write something to "Knitting Kinks" and help make it worth more to the boys in the mill who are responsible for the work.

N. C. S. (TENN.)

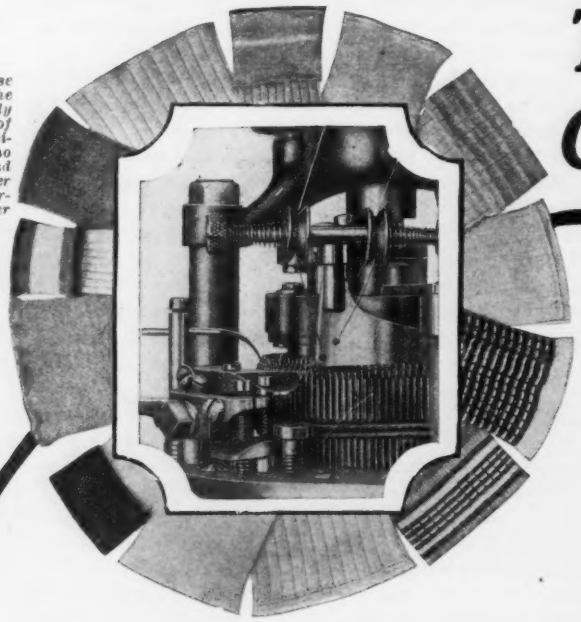
EDITOR COTTON:

In answer to the question, "Do Men or Women Make the Best Knitters?" I will say, as there are various and diverse opinions on this one question, I can only give my experience and observation.

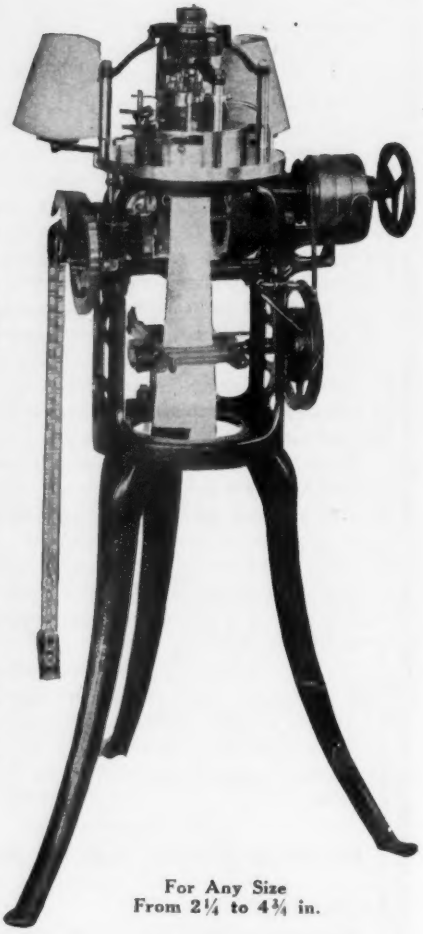
I have used men and women knitters, boy toppers and girl toppers and have observed the good and bad points in each. For a man who has had experience with only one or the other, it would be difficult to give an intelligent opinion on this mooted question. My experience has been one that has brought me face to face with the knitting game in different localities and under various conditions. I have come to the conclusion that women, as a rule, will make average production with less waste, fewer seconds, a smaller percentage of needle breakage and less frequent fixing than

This Loose Course Plate

Saves the Needles



This loose course plate slips under the needle and gently lifts it instead of striking it—no vibration, no shock, no crystallization and breakage. Another reason why Universals operate longer and better.



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From 2¼ to 4¾ in.

Water dropping on a stone will wear it away. So it's natural to suppose that constantly striking on a part as delicate as a latch needle will break it—and it does.

That's why we have designed a decided improvement in loose course plates. We do not allow constant striking on the needle for that is *bound* to break it and stop the machine. The Universal loose course plate gently rises *under* the needle and lifts it—vibration and breakage are eliminated.

UNIVERSAL HOSIERY RIBBER

"The Latest Development in Hosiery Ribbers"

The loose course plate is only one of many improvements. There are no vibrating parts in the dogless and no vibration in the machine itself. A pivot gate latch allows an entire section of the dial to be easily examined; fabric can be picked up quickly by simply raising dial cap—a full 3/16 inch clearance to work in and perfect registry when back in position; take up gears entirely enclosed prevent oil spots and seconds. Heads interchangeable without new dogless parts for sizes 2¾ to 4¾. These features give a stitch of unqualified smoothness and uniformity—the kind that buyers like and the kind that adds distinction to the work of your mill.

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THE UNIVERSAL HOSIERY RIBBER

will men, and on transfer work of any kind their production will be greater and at a smaller cost in waste, seconds, needles and fixing.

In the operating, a woman is more careful with her machine and has more consideration for her employers' interest than has a man, whether or not it be from fear of being "jacked up" or from a keener sense of duty or appreciation, and just here, I might say that a great deal depends on the kind of treatment a woman receives. One may treat a man pretty rough and get by with it sometimes, but kindness will go further in dealing with women.

"K. L. J." says that he is operating eight machines, using two girls for topping and a man for operating the machines. If these girls are expert toppers they should in a short while be able to top and knit for the eight machines (four machines each), thereby doing away with the man entirely. This can be done and is being done on both fine and coarse work. By having the girls to top and knit, one-third less help will be required, which will either lessen the cost of labor or make it possible for operators to make more money and thereby be better satisfied.

Women, as a rule, will watch more carefully the work that comes from the machines and will catch or detect bad work more quickly than will a man. She will not be as quick to hide a fault as will a man, for she knows that she cannot, in the same way, get by with it. She will not tinker with her machine, which will therefore need less fixing. She will report bad work more quickly than will a man, thereby saving seconds and waste. She is afraid to let her machine go long without being fixed. She has a keener sense of judgement and will not take the risks that men take. In other words, "Self preservation is the first law of nature." I have known girls to top and knit on four machines and keep them going to full capacity every day in the week and inspect their work as it came from the machines by running their hands in them, making not more than four per cent menders, including drop stitches. If these had been required to inspect their work they probably would not have had as many mends, but this work was inspected and they were not paid for bad work if more than four per cent was found, so it was to their own interest to do good work.

I have seen girls who would have made excellent fixers. I could name a dozen. The only reason they have not been known as fixers is because they have not had the chance. I knew one young woman who was a fixer, and a good fixer for the short time that she spent on it. She did not have time to learn to repair broken pieces or some of the work that has to be done on a machine, but for putting on parts and making adjustments, she was good. She could stop a machine from making holes in the gores and drop stitches in the legs. She was as good as the average fixer, far above some of the so-called fixers of today and she did not slight her work just to "get by." If she could not do it she would ask for help.

I believe that today I could take the average knitting room with girl operators and after a short drilling, save a great deal in seconds and waste and at least a third in needles. I knew a mill where they had girl toppers and knitters on twenty-five machines and the needle breakage for three and a half years was eighteen needles a day, and the only parts broken during the time was a right up-pick and an inside sinker reinforcing ring, Scott & Williams B-5, the total cost of both being forty-five cents. One wall was broken during the time. The total mends on this work, including looping and all, was not over six per cent. I have not in the last few years had women knitters on ladies' machines, Model K, but were it not for the fact that in my certain section the knitting business has used only men as knitters I would quickly put women on my "K's" and see why.

For the reasons mentioned, I would personally prefer women knitters, especially where I could save one operation in three.

I notice that "K. L. J." is soon going to give some points on fixing, which I am sure the readers of "Knitting Kinks" will be very glad to see. P. T. E. (N. C.)

Curing Corner Hole Cutting.

EDITOR COTTON:

In regard to the George D. Mayo machine cutting corner holes, I noticed some months ago in "Knitting Kinks" the suggestion of a New Hampshire reader to drill a hole in the cam ring bed about ⅜ inch and put in a brass plunger and spring. I might say that I tried this a number of years ago, and found that if only one hole is drilled, and the spring is a strong one, it will push up on that side of the cam ring and make the stitches shorter on that side.

I found it an improvement to drill three holes, instead of one, spacing them equi-distant around the circumference of the bed, and, by putting in three springs and plungers, this pushed up equally all the way around and helped greatly.

The best thing to eliminate this trouble that I have found, which beats the other two ideas, is to bore the oil hole in the cam ring out larger, say to about ¼ inch or not quite so big, and put one squirt of cylinder or 600-W oil in this. This oil, being sort of like a syrup, runs down in there, and doesn't put any friction on the cam ring and yet it serves to lubricate it and makes it shift well at the same time. I have adopted this because I find that this corner hole cutting trouble will come on a machine say for a half a day and then will work itself out, and by using this oil when the trouble appears, and using regular machine oil when there is no trouble, we are getting along very well. I pass this suggestion along for what it may be worth. R. W. (GA.)

Overcoming a Knitting Defect.

EDITOR COTTON:

The defect in the sample sock submitted to me, and which you advise is made on a Model B-5 Scott and Williams machine, may be caused by one of several things.

The fact that this defect appears in a straight line up and down the fabric in several places, indicates that the inquirer may be using the old style sinker tops on his Model B-5 machines. If this is true, the defect in this instance is probably caused by the sinkers overthrowing at the knitting point, causing the nibs of the sinkers to project underneath the thread at the knitting point. Such a condition will cause a defect of this kind. This condition may be remedied by using a heavier grade of oil or putting a little more friction on the end of the sinker. It would be advisable for the inquirer to obtain the newer style of sinker tops to remedy this condition if his machines are not already so equipped.

Another cause may be that the sinker cap is set around

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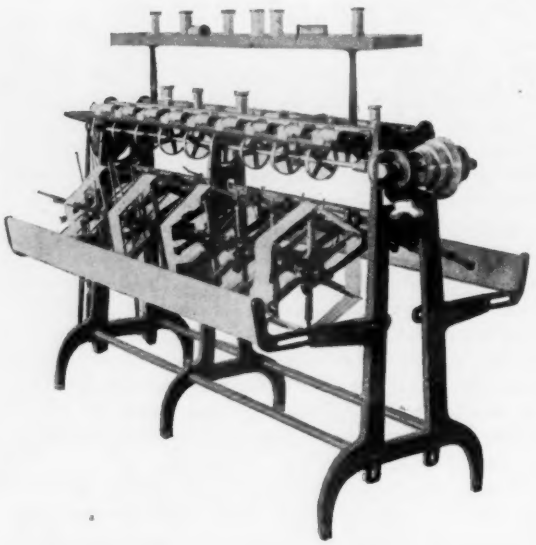
A dependable, economical producer for the Cotton Manufacturer, equipped to wind hard or soft Silk, Rayon and fine Cotton yarns. Mechanically perfect, featuring motor attachments, spiral gear driven take-up shafts, patented geared swifts, adjustable cams and many other improvements.



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For the last Sixty years we have been makers of the best machinery for the silk trade, including Winders, Spinners, Twisters, Reels, Doublers, Redraws, Warpers and other special textile machinery.

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SPINNERS MERCERIZERS GASSERS BLEACHERS

The superior quality of Standard S. P. Mercerized Yarn is the result of—the best raw material—equipment—labor and supervision in both spinning and mercerizing, Standard S. P. Mercerized Yarns set the standard for knitting economy.

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too far, causing the nibs of the sinkers to project underneath the thread at the knitting point, again causing this same defect.

The writer has also had this trouble caused by the butts of the sinkers breaking off, which caused them to project in at the knitting point. I might add that sinkers which are oversize or defective may be another cause.

I hope some of these suggestions may help the inquirer, and I am sure readers of "Knitting Kinks" will be very glad to hear from him as to what results he obtains and what he does to overcome his difficulty. RYMI.

The Cause of Wide Lines in Hose.

EDITOR COTTON:

The question has been asked as to what makes wide lines in a hose, and the answer is, like other defects, there are various reasons; to start with it should be seen that the needle cylinder is clean; next, that all needles are in line and that the cylinder slots or walls are all straight and none of the cylinder walls cracked. The sinkers are also important, and very much so, as they bend easily and will make a fabric very streaky. The inside brass sinker ring is likely to have bent slots, but can be straightened very easily. Adjustment of stitch cams, as well as sinker cams done properly is an important feature and will add greatly in getting a smooth fabric. BOB (CANADA)

Among the Knitting Mills.

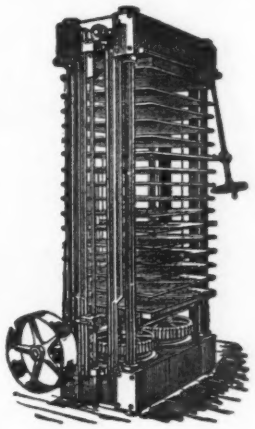
Coupled with recent announcements of hosiery mill transfers and new plants in Philadelphia was the disclosure that manufacturers in other textile lines are becoming investors in full fashioned hosiery enterprises.

W. H. and A. E. Margerison, manufacturers of towels, are associated with John K. Voehringer in the acquisition of the full fashioned mill of the Endurance Knitting Co., which was taken over on November 1 by the purchasers. With the change of ownership the plant will be operated as the Northwood Hosiery Mills, and the product will be sold to jobbers. Mr. Voehringer was, until a few months ago, secretary of Oscar Nebel Co., who sold their mill to Gotham Silk Hosiery Co., and are building a factory at North Wales, near Philadelphia, in which will be installed 44 machines of 42 gauge, the first of which will be in place this month. Mr. Voehringer, in conjunction with Mock & Judson, New York jobbers, a few months ago purchased the mill of the Henry Lehmuth Co., the output of which is sold to retailers through the New York firm.

William S. Diamond and John Bush, carpet manufacturers, are associated with Joseph A. Harron in a new enterprise, the Harron Hosiery Mill, which will be in operation by the end of the year in the manufacture of women's full fashioned silk hosiery. Mr. Harron formerly was vice president of the Glen Knitting Co., Philadelphia, in which his father-in-law, Thomas E. Brown, is the financial head.

The Howard Hosiery Co. last month began the installation of 12 full fashioned machines, of 42 gauge, and the Granite Hosiery Co., selling to retailers, is making the second installation within a year.

The Endurance Knitting Co. having sold its mill to Voehringer interests, the secretary and treasurer of that company—Dana Carmer and Louis Weber, Jr.—who will



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Hosiery and Underwear
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Regular Yarns from 150 up to 1800 denier
Regular and Special Twists for Weavers, Knitters and Braiders
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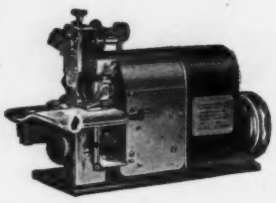

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operate in a new building as the Da Lu Hosiery, have decided to double the size of the structure. Machinery is being installed in the incomplete building as it was planned originally.

The Largeman Gray Co., Philadelphia, have installed the first allotment of a contract for 100 new machines deliveries of which are to be completed by early Summer next year.

Informal announcement is made that Weber interests in the Cambria Silk Hosiery Co., Philadelphia, will finance a full fashioned factory to be established at Blackwood, in southern New Jersey.

Hugo Schumann, president of the Iris Hosiery Co., Reading, Pa., and George G. Guenther, also a hosiery manufacturer in that city, are president and treasurer respectively of a new company, the Reading Maid Hosiery Mill, which has commenced work on the erection of a building for housing a full fashioned plant. Stanley Bellemere, well known as a master dyer and finisher, in Reading, is secretary. The company probably will have part of the equipment in operation by April.

Two tracts have been acquired in and near Reading for still other full fashioned hosiery mills. Persistent report links the Real Silk Hosiery with one and knitters employed in a leading mill there are the smoke screen for the projectors of the other. With the new enterprises under way and contemplated, and the enlarging of the plant of the Rosedale Knitting Co., it looks as though Reading will lead all other cities in next year's expansion in the full fashioned hosiery industry.

Bear Brand Hosiery Co., Chicago, of which Henry Pope, of Paramount Hosiery Form Drying Co. fame, is president, has plans for a full fashioned mill in Beaver Dam,, Wis., which it is expected will be in operation early next year.

Full fashioned manufacturers who recently were visited by two Frenchmen believe France has put out feelers on the feasibility of enlarging her full fashioned field. The Parisians, Raymond Couturat and Louis Tixier, who have spent some time in mills in Philadelphia and Reading, are well informed as to details of construction in many factories, wage rates and mill prices. They were particularly inquisitive as to the point of merit claimed for and the alleged weak spots in every known make of full fashioned machine.

The Richmond Hosiery Mills, Rossville, Ga., have had plans prepared by J. E. Sirrine & Company, Greenville, S. C., for an addition to their plant at Soddy, Tenn., which will be two stories high, 60 x 50 feet.

The Liberty Hosiery Mills, Burlington, N. C., will operate a knitting mill in a new one-story building, 50x30 feet. C. F. Foster is secretary.

Twenty knitting machines will be installed in the recently completed addition of the Martinat Hosiery Mills, Valdese, N. C., according to report.

Wilkes Hosiery Mills Company, North Wilkesboro, N. C., has installed 60 additional half-hose machines.

A new building will be added to the Hanes Hosiery Mills, to be two stories, 500 x 125 feet. Lockwood, Greene & Company are the engineers.

Spring Maid Hosiery Mills, Adams Ave. & Leiper St., Frankford, Philadelphia, Pa., have been placed in operation, making spring needle hosiery for ladies.

Holyoke Silk Hosiery Company, Holyoke, Mass., will

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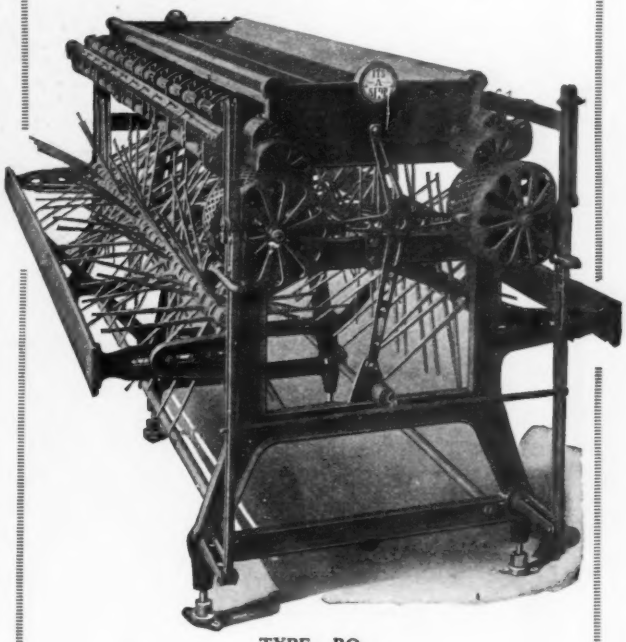
FOR RAYON

The Ideal Winder for Rayon



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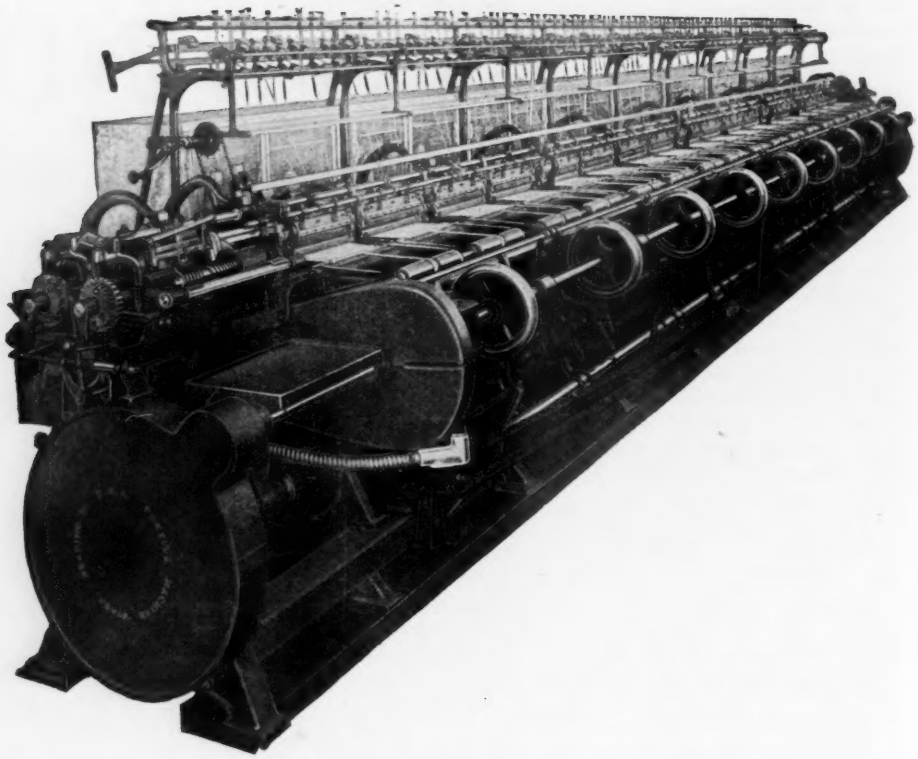

THE FINEST ladies' full-fashioned silk stockings in the world are made in the United States.

And ninety per cent of the manufacturers of these stockings use the Reading Full-Fashioned Hosiery Machines.

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The "READING"
FULL-FASHIONED HOSIERY MACHINE

add three stories to its present one-story structure, and additional full-fashioned knitting machines will be installed, it is reported.

Deerden Hosiery Mills, Philadelphia, Pa., is a new full-fashioned mill which has started operations, it is understood.

Jantzen Knitting Mills, Portland, Oregon, is erecting a one-story addition to its plant.

Nick-a-Jack Hosiery Mills, Main Street, Chattanooga, Tenn., is erecting an addition to the manufacturing plant.

P. H. Hanes Knitting Company, Winston-Salem, N. C., is erecting a storage warehouse. J. E. Sirrine & Company, Greenville, S. C., are the engineers.

The Harron Hosiery Mills, 3360 Frankford Avenue, Philadelphia, is a new full-fashioned hosiery mill organized by A. J. Harron and others.

Meinig Hosiery Mills, Reading, Pa., is considering the erection of an addition to its plant.

The Faith Knitting Co., Averill Park, N. Y., will soon begin the construction of a new addition to its mill, to be two-story, 66 x 135 feet, estimated to cost $50,000.

Dartley, Inc., New York, N. Y., recently formed with a capital of $30,000 will operate a knitting mill for the manufacture of hosiery and underwear for which arrangements will soon be made. The company is headed by M. R. Spink and M. W. Callahan.

The Mercedes Knitting Mills, Newark, N. J., have filed notice of organization to operate at 427 South Sixth Street. Albert Woerner and Andrew Metz head the company.

The Guarantee Sportwear Mills, Inc., Newark, N. J., recently organized, will operate a knitting mill. The company is capitalized at $50,000, and is headed by David N. Berger and Elliott M. Shumlin.

The H. W. Anthony Knitting Co., Strausstown, Pa., will soon break ground for the construction of a new mill at Sinking Springs, Pa. It will be one-story, estimated to cost about $125,000, with equipment.

The Reid Knitting Mills, Inc., New York, N. Y., recently organized, plan the operation of a local plant. The company will specialize in the manufacture of outerwear. It is headed by B. and F. Halperin.

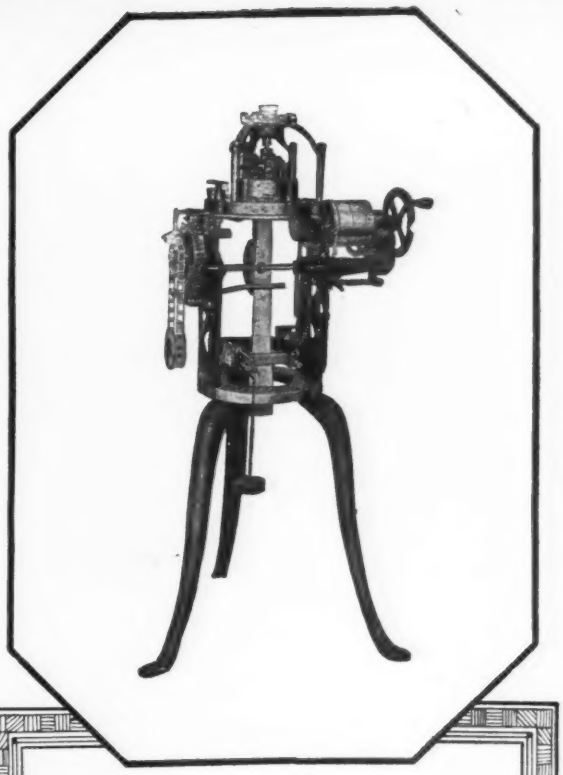
The Apex Hosiery Co., Philadelphia, Pa., has foundations under way and will soon proceed with superstructure work on a new mill at Fifth and Luzerne Streets, estimated to cost close to $275,000, with machinery.

The Wovenright Knitting Co., Kinsman Road, Cleveland, Ohio, has completed plans and will soon proceed with the erection of a new two-story addition to its mill, to be 55 x 135 feet, estimated to cost $50,000.

The Sexton Manufacturing Co., Fairfield, Ill., has plans nearing completion and will soon take bids for a new one-story addition at its local mill. It will be 60 x 145 feet, reported to cost about $45,000.

The Silknit Hosiery Co., 105 North Clark Street, Chicago, Ill., has been formed to operate a local knitting mill. It is said that plans will be perfected for the plant at an early date. The company is headed by John M. Lonergan and F. Farrell.

The Real Silk Hosiery Mills, Inc., Indianapolis, Ind., is reported to have tentative plans under advisement for enlargements in its plant for considerable advance in production. The company recently sold a preferred stock issue of $2,500,000, a portion of the proceeds to be used for expansion. J. A. Goodman is president.



BRINTON RIBBERS

possess all modern improvements, including selvage welt, French welt, double knee dogless and striping attachments, with automatic stop motions.

Built in all sizes for all classes of rib work.

We also build hosiery knitters and Body machines for underwear and various other circular machines for all kinds of knitted articles.

Samples and prices on request

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The Yarn Market

A continuation of curtailment through power shortage in manufacturing centers, two unexpectedly high Government crop estimates, and, paradoxically, a higher level of rates generally featured the Philadelphia cotton yarn market during the past month as reported here.

The apparently unrelieved power shortage caused by the drouth which was commented upon here last month played its effect of forcing a reduction in production, particularly in the fine combed yarn groups. This effect was lightened toward the end of the period, when curtailment seemed less drastic.

It was the two Government estimates which played especial havoc in the market, directly and indirectly, and upset deductions which had been made from apparently reasonable calculations. With the textile industry entering into the last quarter of the year with an obviously sanguine hope of increased business, with curtailment forced through lack of prime power, forecasters were predicting a change in the trend. Then along came the report of September 23rd, which had the general effect of gumming things up all the way around. Opinion among the spinners was that it was too high, and that so large a crop was not possible, but the buying end seemed to take some stock in it because probably it coincided with their own ideas, or wishes, and in a way withdrew from a market into which they had seemed to be venturing with genuine interest.

The influence exerted by the curtailment brought on by the drought, together with a continued firmness in the stand of the spinners, prevented yarn rates generally from following suit after cotton took its drop on the basis of the report Particular strength was noted in the combed yarn divisions, as against the carded numbers, this being explained in quarters by the determined stand which the combed spinners have taken for a number of months, which has reduced their stocks of yarn to a minimum, as well as by the fact that the section most severely affected by the lack of rain runs more to combed products than to those of a carded nature. The carded numbers, however, while fluctuating to a certain extent, held their own for the entire period with the result that the end of the month showed them on a higher level, not so high, proportionately, as the combed yarns, but higher, withal, than the plane upon which they started it.

The Government report on October 7th served as another bombshell in the ranks and caused a relapse into the situation from which the market seemed to be recovering. The ultimate effect of the increased estimates was certain to be felt, even for days after their issuance. Rates continued to hold up remarkably well; dealers were willing in instances to yield to the lower cotton quotations, but the manufacturers continued their demands. The result, as mentioned, was a better line of prices generally.

The effect of the involved situation upon yarn demand and buying was such as might be expected under the circumstances. The reports scared some buyers off, while business continued to be transacted under the short inventory method which is becoming more and more universally adopted by business as a whole. In fact, no change in procedure is anticipated by those in intimate touch with conditions. It is believed that the business done showed some noticeable increase, but there was no startling improvement.

Spinning mills, especially those on fine combed work, are some of them reported to be sold well ahead, and that their worry of the drought now is whether it will throw them seriously behind in their deliveries. Hope for the dissipation of this feeling is seen in the restoration of regular schedules of operation in some sections, with a better power situation existing generally. It now seems doubtful that difficulty will arise, or that premium prices will result from the curtailment program.

Philadelphia market quotations on October 15 follow:

Single Skeins.

4s to 8s	37½	10s	38
12s	38½	14s	39
16s	39½	20s	40½
24s	43	26s	43½
30s	46½		

Single Warps.

8s	38½	10s	39
12s	39½	14s	40
16s	40½	20s	41
26s	44½	30s	46½
40s	54½		

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 slack	37½
8s 3-4 white warp twist	36½
8s and 9s 3-4 tinged tube	35½
8s 3-4 hard twist waste	33½

Two-Ply Skeins.

8s	38	10s	38½
12s	39	14s	39½
16s	40	20s	41
24s	44	26s	45
30s	46½	40s	54½

Two-Ply Warps.

8s	39	10s	39½
12s	40	14s	40½
16s	41	20s	42
24s	45	26s	46
30s	47 @47½	40s	57½

Frame Spun Carded Yarn on Cones.

8s	36½	10s	36½
12s	37	14s	37½
16s	38	18s	39
20s	39½	22s	40
24s	41	26s	42
30s	44	40s	54
30s double carded	45	30s tying-in	42 @42½

Two-Ply Combed Peeler Skeins and Warps.

8 to 16s	56	20s	57
24s	60	30s	62
40s	72	50s	80
60s	90	70s	$1
80s	$1.17½		

Single Combed Peeler Yarn on Cones.

18s	50@51	36s	64 @65
24s	54@55	38s	67½ @68
30s	60@61	40s	69 @70

Mule Spun Carded Yarn on Cones.

10s	42	12s	43
14s	44	16s	45
18s	46	20s	48
24s	49	26s	50
30s	51	40s	59

Mule Spun Combed Peeler Yarn on Cones.

10s	50	12s	51
14s	52	16s	53
18s	54	20s	55
22s	56	26s	60
28s	61	30s	62
36s	64	38s	67
40s	70		

The Forest City Knitting Co., Rockford, Ill., has broken ground for a new addition to its mill, to be one-story and basement, 90 x 125 feet, reported to cost about $50,000.

The Farland Knitting Mills, 236 Aborn Street, Providence, R. I., have filed notice of company organization to operate a plant for hosiery manufacture. Adalard Farland heads the company.

T. D. PCKELL, for some time superintendent of the Cumberland Hosiery Mills, manufacturers of fine gauge hosiery, Nashville, Tenn., has become associated with the A. V. Victorius Company, 370 Broadway, New York City, effective November 15th.

WALTER D. SPARKS, formerly overseer of carding at the Gluck Mills, Anderson, S. C., has accepted the position of superintendent at the Bowen-Crews Yarn Mill, at Athens, Ga.

LEESONA
REG. U. S. PAT. OFF.

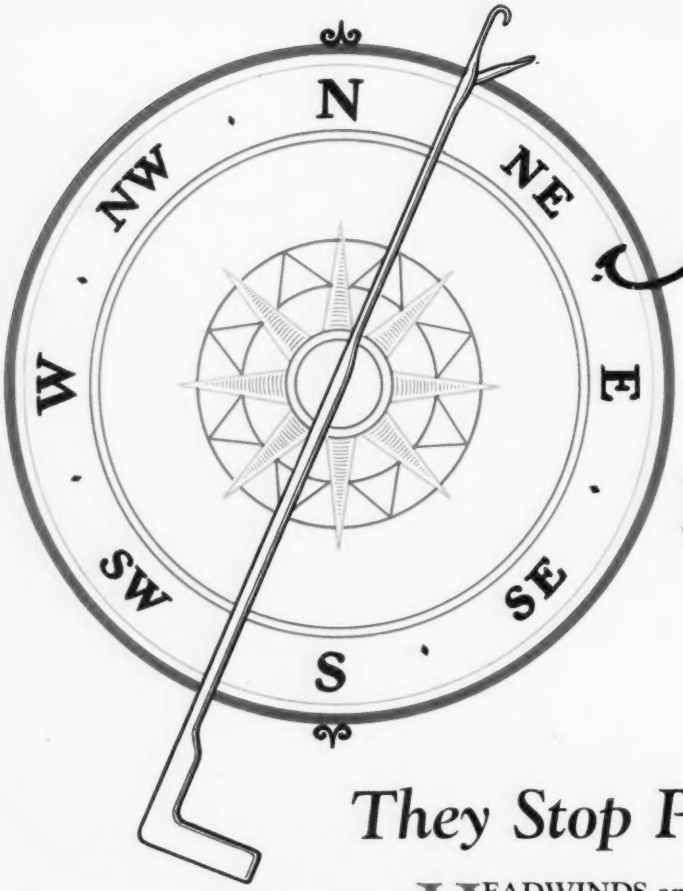
Patent Infringement Notice

IN order to protect our interests and those of our customers, we are bringing suit for infringement against parties manufacturing and selling machines for winding yarn for shuttles, which machines contain mechanism constituting infringement of U. S. Letter Patents No. 940,489 and No. 1,050,850 owned by us.

This notice is given to prevent innocent purchasers from assuming liability for damages by the purchase and use of infringing machines.

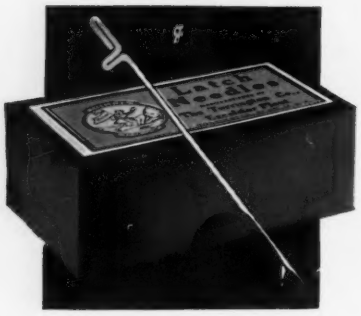
UNIVERSAL WINDING COMPANY

BOSTON



Set your course by Torrington Latch Needles

They Stop Production Leaks



HEADWINDS and storms blow on land as well as on sea. In the knitting industry they may take the form of defective production, or production smaller in volume than you have a right to expect.

Torrington needles are the remedy for this state of affairs. Here are needles that are flawless from butt to hook. Needles that put your production on a quality basis and keep them there, for the Torrington red and green box is a symbol of needle uniformity.

Torrington Latch needles keep production moving at an extra profitable rate. There are no stoppages to remove defective needles and no stoppage of profits from below-standard production.

The TORRINGTON COMPANY

Torrington, Conn, U.S.A.

MANUFACTURERS SUPPLIES CO.
CHERRY AND JUNIPER STS.
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BRANCHES:
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FACTORIES AT:
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UPPER BEDFORD, CANADA
COVENTRY, ENGLAND
AACHEN, GERMANY

The Knit Goods Market

The markets for knitted goods, influenced by sharp fluctuations in temperatures and the presumptive tardiness of Fall in settling down to around the frost line as more nearly in conformity with the calendar, have had a month of ups and downs in volume of trading, with prices remaining practically undisturbed save for markups on certain mill lines of silk hosiery. The latter part of October showed improvement all along the line, in Winter underwear especially. Hosiery and sweaters came into better demand, and in the three major fields of knitting, mills were operating on full worktime schedules, many of them overtime. There were some quiet spots industrially, due to character of product rather than any slowing down in the primary markets.

An unexpected development about the middle of last month was an apparent easing in demand for rayon hosiery for women. There were times four to six weeks before when hosiery manufacturers were complaining of late deliveries of artificial silk against their contracts and their inability to obtain additions of a few cases to their allotments. Those which had more of the fiber on contract than they were consuming were able to dispose of it at a premium of 10 cents a pound. Subsequently the premium was scaled to five cents, and eventually offers were made at the contract price. This indicated decline in consumption by some mills is viewed as supporting the impression prevailing in certain quarters that rayon hosiery is not in as strong call as formerly, notwithstanding there are manufacturers reporting a sold-up condition.

Trustworthy statistics compiled from reports of representative mills show a falling off in production of rayon hosiery for both men and women, the decline in August amounting to approximately seven per cent, making comparison with July. There were increases in silk mixtures, however, and it may be that mills offering surplus rayon contemplated changes in construction, discontinuing the all-rayon goods and substituting rayon-and-silk or rayon on mercerized cotton yarn for price purposes.

The continued high cost of silk appears to be operating to the serious disadvantage of manufacturers of women's seamless silk boot hose. They have been forced to name higher prices, while only a few of the full fashioned mills last month announced advances, and retailers were able to get all the goods in this class they wanted, practically no jobber having moved prices up. Thus, with the spread between the cost of seamless and full fashioned narrowing, so far as concerns distributors, the advantage from the firmness of raw silk on a high level lies with the full fashioned, and production is gaining very fast, with promise it will increase its lead next year. Mill reports indicate a gain of over 80 per cent for August, comparing with the corresponding month of 1924, and a slight slipping in women's seamless silk.

The trade wants a dollar silk stocking. A really good one of all silk is next to impossible, with worm silk at around $7 a pound for double extra. It has been successfully demonstrated that a very satisfactory stocking in this price class can be made from three threads of Japan silk plated on one thread of 150 denier rayon. A stocking of this construction is a very profitable dollar-a-pair proposition for the retailer, even with the tacking on of a quarter to a half-dollar a dozen. But some mills are seeking to reduce the cost, and several have tried two strands of silk on rayon. They are getting more seconds, and it is not improbable that if there be any widespread cheapening, confidence in silk-and-rayon construction will be shaken and full fashioned hosiery of light fabric, at a retail price of $1.25 a pair, will be the chief beneficiary. In fact, until recently it was possible to obtain 36 gauge full fashioned at a price that made it a not unprofitable retail dollar seller.

With seamless silk hose for women having lost some ground, it seems not improbable rayon goods will have difficulty in holding their former place in the trade. Some leading jobbers and retail stores do not handle rayon hosiery of cheap construction, and the cost of the very high grade is not so far below that of low price all-silk boot hose as to make it really attractive to discriminating shoppers. At the moment, of course, there is very strong demand for hosiery in holiday packing, and this, obviously, includes little of the rayon. Especially is full fashioned chiffon hosiery a big item in the primary market holiday trade specifications. Some mills last month were making more of the sheer than at any time this year, and there was much speeding up of plants. Manufacturers of both chiffons and service weight silk hose whose sales of the former had increased said there had been no falling away in the business in the heavier fabric. Viewed from almost any angle, the hosiery situation has its greater strength in full fashioned silk.

Production of cotton hosiery of all classes was increased materially during the nine months of this year comparing with January to September of 1924. Much of this can be accounted for in the broader use of mercerized yarn for fancy stockings for men, men's and boys' sports and golf hose, and women's featured mercerized, to say nothing of fancy top juvenile English ribs. There continues light to fair demand for low price women's mercerized for export, and some domestic distributors say they are having a better call for goods to sell at 35 to 50 cents a pair. But all of the women's mercerized hosiery of all descriptions is a comparatively small item in the gross output of all classes, and usually buyers are able to get very low prices in competition, despite the higher prices at which mercerized yarns are ruling, due in part, doubtless, to demand for the top and foot of full fashioned silk stockings.

Novelty half hose, while viewed with much skepticism by many interests, seems safely entrenched for at least another season, judging from orders which some leading jobbers have placed for 1926 deliveries. Mills specializing in frequency of change in pattern are, some of them, sold ahead to May, it is stated by executives, and many orders for wanted designs for the current season have been declined. Several mills in Reading put on sale a new pattern of half hose every month, selling up of one innovation while shipments of its predecessors are but half completed. They keep the market supplied with fresh goods and protect their trade by restricting output of any one strong number, thus making it harder for copyists to compete in either price or construction. It is the policy, generally, to discontinue a pattern when it appears to be at its peak in demand.

What is described as silk-and-wool hosiery, mostly wool

SNIA-VISCOSA

CHEMICAL TEXTILES

IT IS to your interest to know that some of the Snia-Viscosa factories were among the pioneers in the production of Rayon, and gradually developed to be the largest producers in Europe.

In addition to the excellent *qualities* of the Snia-Viscosa Rayon in the raw, known the world over, we are able, through our large plants in this country, to offer the trade an up-to-date *service* in converted yarns of every description, both dyed and in the natural color.

Extensive experience and knowledge are undoubtedly of great advantage to consumers who secure their requirements through this old established and reliable firm.

NOTE:
In addition to Viscose Rayon, we are now prepared to submit samples and quote on 60 to 100 denier sizes of Nitro-Cellulose Rayon (made according to the most generally accepted alcohol process) the excellence of which, for special requirements, is well known to American manufacturers.

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General Offices: 15 East 26th St., New York City *Converting Mills:* Passaic, N. J.

REPRESENTATIVES:

Wm. G. Burke, Reading, Pa. Walter Schmaedig, Philadelphia, Pa. Geo. J. Loerzel, Chicago, Ill. Wm. Wulfers, Providence, R. I.
H. T. Cosby, Charlotte, N. C. and Chattanooga, Tenn.

and artificial silk, has come to the front strong in the men's division, more particularly in moderate price numbers. A half dollar number of an up-state Pennsylvania mill is sold to January, and it is stated shipments for the season will total more than 300,000 dozen pairs. This manufacturer, with an aggregate output of 4,000 dozens a day, is having a run on rayon-and-mercerized half hose, a line which he has been making for some years. While the business in patterns runs large, it is exceeded by that in plain half hose. A representative mill in the smaller class making novelties only has been compelled to curtail output. Its lines have sold right along with those from other mills, but recently have not been in strong call.

Novelty hosiery for women has proved a disappointing proposition for numbers of manufacturers. One whose lines have been in good standing is having so little business that last month there was prospect the factory would be closed down temporarily. In this factory mercerized cotton yarn and artificial silk are used in combination.

Except as to hosiery in the so-called wool class, it appears, woman wants it plain, and prefers the full length, to be worn either that way or rolled. Silk hose with especially light lisle top, for facilitating the rolling without presenting a bulky appearance, is being well received by the retail trade in sections where innovations in this respect were introduced recently.

The better class shops report women partial to fine gauge full fashioned hosiery of rayon and worsted yarn in combination, stockings of this description selling at $2 a pair and up. Women's heavy wool hose seems to be receiving little attention. There are some carryover stocks of British goods of high grade construction that, it is feared, will have to be sacrificed lest they remain for another season. In wool and as well as silk there is a pronounced leaning to light weight fabric, as evidenced particularly in phenomenal demand for certain mill lines of eight strand silk.

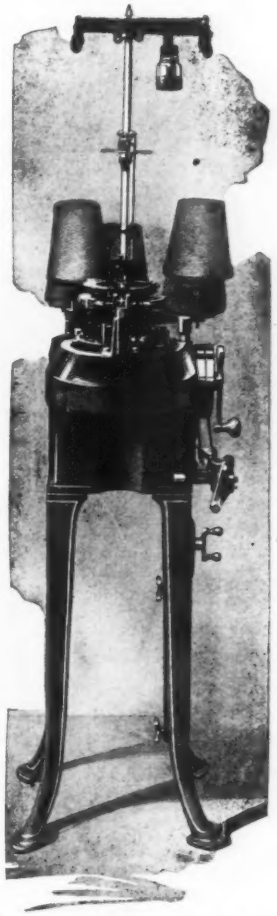
Some little apprehension of serious market disturbance was precipitated in October, with an increase in cancellations of orders. These involved mainly cotton hosiery, which some jobbers were disposed to view with distrust, it appeared, when the official estimate of a bumper cotton crop came out, and wool goods when a day or two of high temperature followed short periods of cool days and nights. The class of distributors that treats cancellation as a prerogative established by unwritten law were quick to repudiate orders, and it was feared for a time their doing so would lead to primary market price cutting. This fear soon vanished and toward the end of the month the market again settled down to a good trading basis, having quickly recovered what little ground had been lost momentarily.

Considerable juvenile hosiery as a class remains to be bought by jobbers for their early 1926 deliveries. In instances they have contracted for less than to the corresponding period of last year, notwithstanding a scarcity for immediate shipment developed toward the tail end of the season. Procrastinators say they do not know what to buy; that of the multitude of designs on the market it is difficult to determine which may be the better seller.

To stock up with assortments, it is pointed out, would involve unusually heavy commitments, which is true enough, not only in relation to children's lines, but especially so as to men's half hose, of which latter there has been bulky advance buying by leading houses. The fact that goods were to be had early this year when there was a clamor for

HALF HOSE MACHINE

Two Feed



The Standard H Two Feed Machine produces fancy hose with a production at least 30% greater than on single feed Standard H. This means 60% more than competitive single feed machines.

This, combined with our guarantee of saving in floor space, an absolute absence of picker trouble and unequalled flexibility in changing patterns, makes this machine worthy of your consideration.

Write for catalog,—it clearly explains the exclusive and superior features of this modern knitter.

STANDARD - TRUMP BROS. MACHINE CO., *Wilmington, Del.*

AMERICAN YARN & PROCESSING CO.

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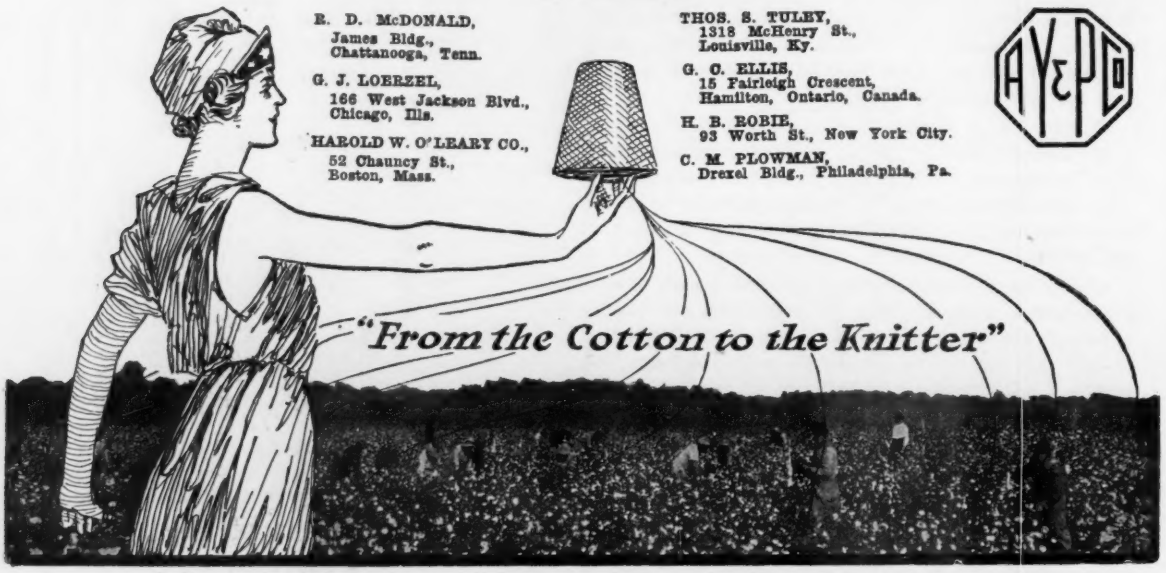


"Industrial" Rayon Yarn

The Plant—

Adequate in proportions—responsive in appointment and personnel to the pressure of trade demands which increase steadily because of the *decisive merit* of "Industrial" output.

The Policy—

A fixed determination that "Industrial" Yarn shall eminently fit every purpose for which it is sought . . . that it shall be, not "just as good," but the very best obtainable . . . that "Industrial" Service shall reach a step beyond the range of trade expectation.

The Product—

Uniform throughout in those standards of excellence which have elevated Rayon to its high position in the favor of Fabric Producers . . . *certain* to embrace any new developments resultant upon increasing research.

Additionally . . . delivered to our customers thrown, dyed and put up to specification, ready for immediate weaving or knitting operations.

The INDUSTRIAL FIBRE COMPANY Inc.

148 MADISON AVENUE, NEW YORK CITY

Factory: CLEVELAND, OHIO

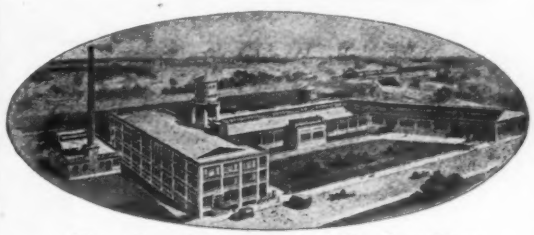
better deliveries leaves the tardy to infer they can as well make their selections later as now. This is going to prove a dangerous procedure as to some lines of seven-eighth length and infants' socks. However, mills are better off this year than last, in that more orders have been promptly followed by specifications. But in Philadelphia, it is noted, there is not the same pressure for mill operatives as existed late in 1924 and early 1925. Of course, few if any mills are putting juvenile goods in stock, for the same reason advanced by tardy jobbers for their attitude toward the market—they cannot foretell what will be required. Novelty hosiery has been the life of the market, but is a precarious undertaking for those who do not know how to play the game.

It is noted there is less night work even in mills where there is no dearth of unfilled orders. To escape operating nights a Philadelphia manufacturer is installing additional machinery. The character of help usually seeking night-time employment is not dependable, this operator says, and "I have observed that even the better mechanics become indifferent after a few weeks. Night operation of plants may pay for a little while, but will lose out in the long run, and," he added, "never again will we resort to it, although we might have to turn down some business."

Children's fine gauge combed ribbed hose has been in stronger call, leaving in some minds a question whether the full length stocking may not win back a part of the favor which was lost with the exploiting of patterns and colors in dropstitch and derby rib. Obviously, with the return of the youngsters to the public schools there was seen a broadened use of the one-time staple fine gauge combed rib, now costing jobbers around $1.60 a dozen for 300 needle and finer. Carded ribs, usually 28 ounces to the dozen, barely shared in the smattering of activity in combed, nor has there been much interest in plain mercerized, on a price parity with the fancy rayon top seven-eighth with mercerized leg.

Somewhat recent innovations in the season's distribution of juvenile hosiery is a five-eighth length number, from the mill of the Wallace Wilson Hosiery Co., Philadelphia, and a clever imitation of the R I, brought out by the Rome Hosiery Mills, Rome, Ga. It was stated at the company's New York office, while John M. Berry, the president, was giving the Gotham market another once-over, that a feature of the construction is covered by letters patent. The stocking carries a top with knitted-in stripes, and is designed to pass over the counter at a quarter a pair. It may be significant in this connection that Mr. Berry, one of the comparatively few large manufacturers of low end cotton plain hosiery, has turned attention to at least one line in the semi-novelty class in which mercerized yarn figures.

A phase of the hosiery situation in general that caused some jobbers and large retailers to proceed cautiously with their commitments was the offerings last month in women's specialty shops and department stores at prices which, in view of the increase in the cost of silk, ought to have been higher. In many instances they were lower, and in few cases higher than at previous special sales. Raw silk is costing mills 85 cents a pound above this year's bottom price, basis of best No. 1 extra, and around $2 more than the low for 1924. Yet there have been no advances of moment by manufacturers, none coming out until early in October. Jobbers point to this as indicating manufacturers were in need of business. The fact is, they have turned



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Spinners, Bleachers, Dyers and Mercerizers of High Grade Combed Yarns

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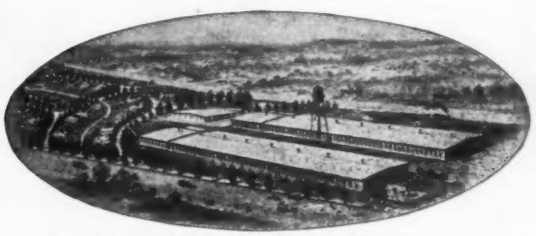

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THE ELMORE COMPANY MERCERIZED YARNS Spindale N.C.

Specializing in Fugitive Shades for Plaiting and Splicing

The ELMORE Co.

Spindale, N. C.

Selling Agents COTTON PRODUCTS CO., Bankers Trust Bldg. Philadelphia

much business away, and refrained until the last moment from making advances only because of fear of disturbing the market.

If there was any scarcity of hosiery at any time this year, the buyer seeking to bear the market for the moment, will ask, why is there so much of it being offered in stores at sacrificial prices? The answer to this is found in the fact there is the keenest kind of competition among retailers themselves and with the house-to-house canvassers and coupon establishments, and further, that it is desirable to dispose of certain colors that seem likely to yield to new Fall shades. Besides, the large stores always use some commodity as a "leader," and hosiery doubtless serves this purpose better than could any other.

The canvasser is the one outstanding thorn in the side of the hosiery retailer. He not only is diverting probably $100,000,000 business in silk hosiery from stores every year, the sales of the Real Silk Company for the current year alone being estimated at $35,000,000; but he is spreading propaganda among consumers for discrediting department store advertising, it is charged by the merchandise head of a leading establishment in Philadelphia. "The canvasser," this person said, "makes the woman in the home believe store prices are higher and that when special sales are advertised hosiery seconds are used, which may be true of some small stores."

Some few manufacturers of silk hosiery are backing it with their unconditional guarantee, for better enabling retailers to cope with the canvassing fraternity. Almost all of the better shops in Philadelphia are selling their respective branded lines under a guarantee of a new pair given free if the pair purchased proves unsatisfactory. The shopper pays perhaps 10 to 25 cents a pair for the guarantee, which, unless imperfects be found, probably costs mill and merchant practically nothing, and likely is a factor in increased sales. There is on the market a dollar line of women's silk boot hosiery that is unconditionally guaranteed by manufacturer, jobber and retailer. It costs the latter $10.50 a dozen, which is a half dollar above his maximum, as a general proposition. Low prices and guarantees are a part of the answer of stores to the challenge of canvassers.

Underwear.

The direct-to-consumer manufacturer is making some progress in the cotton underwear field, probably the more uninviting for the canvasser, with the cotton garments for women fast passing and men's knitted yielding to the cut-and-sewed. The Fisher-Taylor Knitting Co., Hazleton, Pa., claims to be the only manufacturer selling women's cotton underwear direct, and it is stated the sales are increasing year by year, the business for 1925 doubling that for 1924. The Philadelphia division manager says women seem delighted to have cotton underwear offered in their homes, especially in the rayon striped numbers. The company also manufactures and sells to consumers knitted cotton underwear for men and children. All of its garments, it is stated, are made from combed yarn. As the canvasser is credited with having done more than any other agency to promote sales of full fashioned silk hosiery, it is held as not improbable he may be equally a factor in reinstating women's cotton underwear.

The underwear primary markets have brisked up considerably since jobbers became active in placing heavy weight repeat orders and, running true to prediction, certain types of garments have at times been in short supply

PIGEON COMPENSATING YARN TENSION

"The Wonder Tension"

Insures Perfect Plating—Even Lengths—Smooth Weave and in every way a Quality Product.

Pigeon Compensating Yarn Tensions can be applied to all Circular Hosiery Knitting Machines. Will change drag according to delivery from cone. Works automatically—tightens drag on light or dry spots and releases on heavy or wet spots, insuring even drag at all times. Smooth Porcelain Roller Guides protect yarn from damage.

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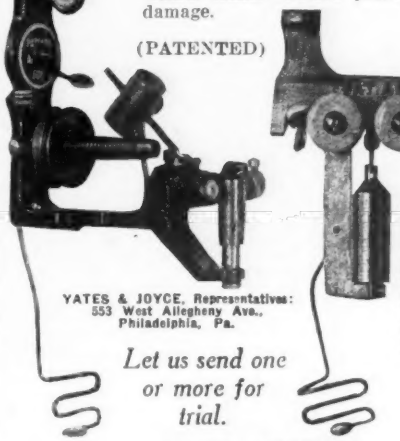

Southern Mills Equipped with Pigeon Compensating Yarn Tensions

United Hosiery Mill Corp., Chattanooga, Tenn.; Dalton Hosiery Mills, Dalton, Ga.; Browning Hosiery Mills, Chattanooga, Tenn.; Harriman Hosiery Mills, Harriman, Tenn.

YATES & JOYCE, Representatives: 553 West Allegheny Ave., Philadelphia, Pa.

Let us send one or more for trial.

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Successor to A. M. PIGEON

14 E. MARSHALL ST. NORRISTOWN, PA.

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The EASTWOOD Winder

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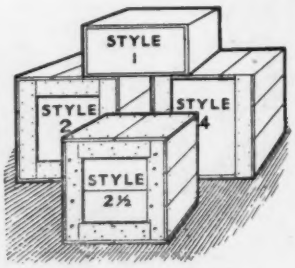
Box Shooks

—made of best grade North Carolina pine, planed smooth. Cut from thoroughly dried lumber to prevent excessive weight. Before you buy compare ours with others as to quality and price.



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—Plants at—
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Pee-Gee MILLITE for INSIDE the Mill
Pee-Gee MILL COTTAGE PAINT for Outside
Pee-Gee PORTLANITE for CONCRETE
Also a Pee-Gee Paint Product for Every Purpose
Write or wire for prices.

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BETTER
TRADE **100%** MARK
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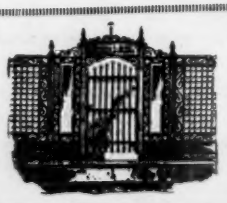
BRIGGS SHAFFNER COMPANY
WINSTON-SALEM, N. C.



WIRE RAILINGS
WINDOW GUARDS
WIRE CLOTH
Established 1835
DUFUR & CO.
509 West Franklin St., Baltimore, Md.

for desired deliveries. This was the case for a while with 14-pound cotton ribbed union suits, and it appeared that most manufacturers of well established lines were experiencing a sold up condition. The slide in cotton came too late in the distribution season to affect primary market prices. It came at a time when numbers of mills had nothing to offer for delivery before December. The group of southern mills which usually leads in opening for a season were regarded especially well situated as to orders, and the seniors in New England, the Mohawk Valley and the Central West are known to have sold so much of their production that it was not necessary to solicit duplicate business.

The winter weight season closed well for manufacturers and is promising of a satisfactory ending for jobbers. Most of them report sales ahead of those at the corresponding period of last year. But it was not until the first touch of snappy weather was felt that jobbers were feeling really comfortable. Retailers had bought late and sparingly. They of course, were the first to feel the stimulus of a frosty air and the little fellows who buy in quarter dozen lots made many trips to market last month. Most of them have supplies for one or two blustery days, and it was a warm day in October when a dozen or more were not in line in some nearby jobbing house. In practically every wholesale establishment the shipping department has been working far into the night. And, in this respect, the worst is to come, for it may be set down as a fact that less than 50 per cent of the retailers have stocks for carrying them through to December. And probably 50 per cent of the mills will not be able to help them out when it comes to filling in late next month.

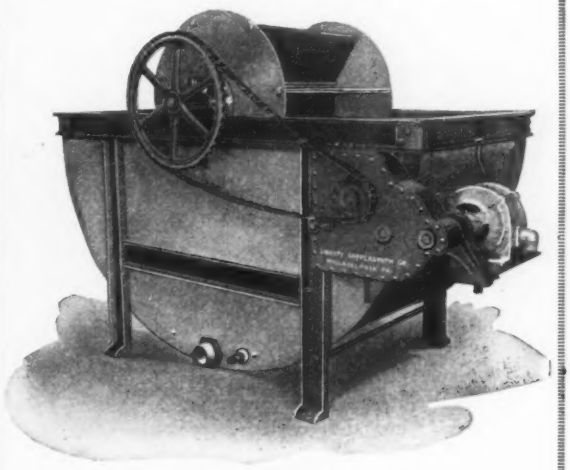
The bulk of the primary market light weight business is yet to be written, in the opinion of important factors. As the retailers have hardly started placing orders in summer lines, jobbers are doing very little in the way of adding to their holdings. Buyers are inclined to look for price recessions, and, it is conceded, may get them in low end knitted garments, particularly as the outlook is for a broader use of nainsooks next year, it is stated by some large operators. The B. V. D. Co. last month announced a special price for drop shipments of case lots, f. o. b. Baltimore, as one means for expanding its sales. One of its more powerful rivals in nainsook, madras and soisette lines is using rayon striping as an embellishment, and distributors say the novelty goods are moving apace with fancy half hose. Men also have a wee weakness for the delicate in underthings, it appears.

As each succeeding generation uses less heavy underwear and more of the cut-and-sewed athletic types, the prediction is heard that but a comparatively few years will elapse before the 16-pound union suit will be a thing of the past in urban centers and in much reduced distribution in rural districts. To a great extent the 14-pound suit has superceded the 16, and the 12-pound is in larger call. This would not appear to dovetail into the fact fleeced cotton underwear is one of the scarcest of underwear lines. Such mills as the Union and High Rock were sold ahead to December as early as September, and in October it was not easy, at times, to find fleeces available for shipment next month. This tight situation can be accounted for in part by the fact the High Rock company had diverted one of its mills to the manufacture of sweater coats and that elsewhere there had been curtailed production.

LIBERTY

Monel Metal Dyeing Machinery

Skein Tanks, Pails, Dippers, Etc.



MONEL METAL PADDLE MACHINE
MOTOR DRIVE

Liberty Coppersmithing Company

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Repair Work a Specialty.

BLEACHED GLYCO DEVELOPER

Are your goods flimsy?

Do you want to add body?

Fill up the fabric?

Get increased lustre with weight?

Used in the dye bath.

Will not change colors nor injure finest fabrics.

Wonderful for chiffon and artificial silk hosiery.

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QUAKER CITY CHEMICAL CO.

2736-38-40 N. Broad Street,
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Southern Representative:
Wm. S. McNab, 2835 Magnolia Ave., Knoxville, Tenn.

Woolen underwear, of which not a great deal is being heard, is in better demand from jobbers since they have been moving some goods to retailers. The heavy wool garments are selling fairly well in communities where there is much outdoor work in the way of building construction. The underwear market as a whole evidences soundness which, it is believed, augurs well for those manufacturers who had planned to open their lines in November for the 1926 season, and contemplating the usual volume of shipments in the first quarter of the year.

Sweaters have had a big market lift in the last month or two, but the situation, as a whole, cannot be said to be satisfactory to mills. Those which were fortunate enough to properly budget their production have had a big season, so far as relates to volume of sales, but they have had large sums tied up in stocks awaiting jobber instructions and, in the keenest of competition, low prices have prevailed, although the consuming public may not know or hear of it. Prices for Spring and Fall of 1926 will come out in November, when many mills will submit showings of new patterns and colorings.

That there is need for a revision of the sweater nomenclature is indicated in the variety of terms employed for the type of coat that seems more appropriately described by the word "Windbreaker." It has been a big seller by this title, and "Windjammer" and "Lumberjack." For steadfastness, sports coats and semi-novelties have been foremost in the selling, while business in shakers fell short of expectations. There has been some increase in sales of women's coats, notably in brushed wool garments, but none of the women's lines has caused any excitement. The mainstay of the market is men's coats, with boys' garments running a close second. Mills selling to retailers have, as a class, fared better than those distributing through jobbers, although some of the latter have found it necessary in recent weeks to maintain overtime work schedules.

Good size jobbers are buying sweaters in lots of two to four dozens and retailers in one-twelfth to half-dozen lots. This is no exaggeration, leaning rather to conservatism. A retailer will make two or three purchases in a day and it not infrequently happens that some noisy pattern that has been carried a few days will be exchanged for something more subdued or more ridiculous. Coats that duplicate the broad stripes of the old-time horse blanket and the modern blanket for the bedroom have been good sellers in communities where there is a reveling in collegiate style.

A Reported Trend in Apprentice Knitters.

Full fashioned hosiery manufacturers in Philadelphia are said in reports from that city to be having less difficulty in obtaining learners or apprentices. Numbers of young men who had looked forward to a professional life and found it overcrowded are turning to full fashioned knitting, and some very desirable material from which to make knitters for the future, when more of them will be required, is being offered from the ranks of college boys and high school graduates. Numbers have, it appears, abandoned the white collar field to prepare themselves for filling $100 a week jobs in factories where knitting is little less a profession than callings in which prospect of office life is so alluring.

The full fashioned Hosiery Knitters Union, which seeks to restrict the number of learners in any one factory, and said to be more strongly organized in Philadelphia than in any other American city, is reported waging an unusually active campaign for still further strengthening its ranks in Philadelphia, while making a drive also in Reading, where the union never was able to get a foothold. There are many openshop mills in both cities, it is stated, and it is these that are attracting young men who seem to have started out to learn full fashioned knitting from the ground up, without unnecessary restrictions, and in the meantime fit themselves for executive positions in hosiery mills.

It is understood the present organization drive of the union is aimed at eventual control of the apprenticeship system, under which a learner does not become a full fledged knitter until after four years' experience at the machine. Another matter that it is intended to correct is the violation of the union rules for regulating hours of labor, virtually, weekly earnings. Some of the rabid unionists who were foremost in prolonging the nine months strike in 1921 are accused of operating two leggers, in defiance of a ruling none shall operate more than one, and engaging in overtime work. It is no secret among employers and employees that such offending union members are drawing as much as $150 a week. Several mills in which the earnings exceeded the union limitation were crippled last month, when offenders were called out. One manufacturer was willing to employ only union knitters, but the organization could not supply enough to keep the plant running full. Another assumes to run an open shop, employing both union and non-union operatives, but the union closed his mill. The difficulty in both mills was patched up, but conditions since have not been satisfactory.

Employers say it is the attempt to carry union domination too far that will encourage manufacturers to make the full fashioned field the more tempting for the white collar lad imbued with the spirit of freedom in industry. He is of course attracted by princely earnings and short workdays, with very great possibilities. As it seems difficult to enroll him in the union, some old-time members thus find a pretext for sneaking in a few extra dollars by overtime work and other union regulation violation. The enlistment of learners in the open market is said to have had a demoralizing influence on knitters who, while members of the union, put earning possibilities above strict loyalty to the organization.

Boys who began as learners less than a year ago are, in some instances, drawing a weekly wage of $55 to $60 a week, with the prospect of earning twice as much within another year. They are entering a field that has been practically closed to them by too much unionism. While the union seems to be strengthening its membership, the number of open shop mills is slowly increasing and these are having less trouble than formerly, which supplies an explanation in part for the present activity of the union organizers in Philadelphia and Reading.

Pontacyl Green NV Concentrated is an acid green of bright yellowish shade recently brought out by E. I. du Pont de Nemours & Co., Inc. It is especially for ladies' dress goods for the production of navies, it is stated. It can be used for all types of woolen goods, it is stated, and leaves cotton, artificial silk, etc., effect threads clear in an acid bath. On union goods in a neutral bath, it leaves cotton clear. On silk, lighter shades are produced.